



DEPARTMENT OF THE NAVY  
OFFICE OF THE CHIEF OF NAVAL OPERATIONS  
WASHINGTON, DC 20350-2000

AND  
HEADQUARTERS  
UNITED STATES MARINE CORPS  
WASHINGTON, DC 20380-0001

IN REPLY REFER TO

OPNAVINST 6250.4A  
OP-451  
CMC (LFL)  
28 NOV 1990

OPNAV INSTRUCTION 6250.4A

From: Chief of Naval Operations  
Commandant of the Marine Corps

Subj: PEST MANAGEMENT PROGRAMS

- Ref: (a) DOD Directive 4150.7 of 24 Oct 83 subj: DOD Pest Management Program (NOTAL)  
(b) DOD Directive 6050.10 of 15 Mar 85 subj: The Armed Forces Pest Management Board (NOTAL)  
(c) DOD Regulation 4150.7-M of 13 Jun 78 subj: Department of Defense Plan for the Certification of Applicators of Restricted Use Pesticides (NOTAL)  
(d) Title 7 U.S.C. Section 136 et seq subj: Federal Insecticide, Fungicide and Rodenticide Act (NOTAL)  
(e) OPNAVINST 5090.1 of 26 May 83, subj: Environmental and Natural Resources Protection Manual (NOTAL)  
(f) Office of the Assistant Secretary of Defense (M,I&L) memo of 5 Nov 84, subj: Quality Assurance for Pest Control Functions (NOTAL)

Encl: (1) Navy and Marine Corps Pest Management Programs

1. Purpose. To provide Navy and Marine Corps policies and procedures for implementing pest management programs. This instruction is a substantial revision and should be reviewed in its entirety.

2. Cancellation. OPNAVINST 6250.4.

3. Definitions. The terms and acronyms used in this instruction are defined in enclosure (1).

4. Applicability and Scope

a. Applicability. This instruction applies to all ships, stations, and deployed personnel of the Navy and Marine Corps where pest control operations are performed including non-DON property under Navy stewardship.



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b. Scope. Navy and Marine Corps pest management operations are directed against pests that adversely affect the mission of the Navy; the health and well-being of Navy and Marine Corps personnel and their dependents; attack or damage real property, supplies, or equipment; or are otherwise undesirable.

5. Background. Reference (a) establishes the Department of Defense (DOD) policy and overall guidance for DOD pest management programs. Reference (b) established the Armed Forces Pest Management Board (AFPMB) as a triservice pest management coordination and advisory body that includes Department of Navy representation from the Marine Corps, the Bureau of Medicine and Surgery (BUMED), the Navy Environmental Health Center (NAVENVIRHLTHCEN), and the Naval Facilities Engineering Command (NAVFACENGCOM). Minimum competency standards for pesticide applicator training are set forth in reference (c) per public law, reference (d). Reference (e) provides legislative requirements applicable to the prevention and abatement of pollution from pesticides. Reference (f) waives the quality assurance evaluator allowances cited in Office Management Budget Circular (NOTAL) A-76 for small pest control functions and allows up to 10 percent of the cost of the contract for administration.

6. Policy. It is Navy and Marine Corps policy to:

a. Prevent biological organisms from adversely affecting military operations and missions;

b. Safeguard human health and morale by controlling pests that transmit diseases, annoy personnel, or represent a hazard to public health or safety;

c. Maintain and extend the service life of facilities, structures, and material by preventing economic pest damage;

d. Enhance environmental quality through the protection of desirable natural resources;

e. Ensure that pesticides are used safely and consistently with label directions;

f. Minimize the use of pesticides in situations where nonchemical control alternatives are available and cost effective;

g. Comply with quarantine laws and regulations as related to protecting plants, animals and human health; and

h. Comply with laws and regulations concerning pesticide storage, application, and disposal of hazardous wastes.

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7. Responsibilities

a. The Chief of Naval Operations and the Commandant of the Marine Corps are responsible for providing policy and management of pest control functions.

b. The Bureau of Medicine and Surgery (BUMED) is responsible for:

(1) Providing professional guidance, recommendations, and on-site assistance to shore and fleet commands on all technical matters relating to disease vectors and other medically important pests.

(2) Monitoring and evaluating vector surveillance and control programs, maintaining safe pest control functions and providing technical guidance for disease vector surveillance, vector control, and occupational health issues.

(3) Conducting evaluation and testing studies in vector ecology, surveillance, prevention, and control including ground and aerial dispersal methods for contingency operations.

(4) Providing training, certification, recertification of vector control specialists and other medical department personnel and initial training and certification of civilian applicator personnel and nonmedical department personnel in cooperation with NAVFACENGCOM and following DOD standards.

(5) Providing specialized, area-wide operational services including contingency response, medical entomology information, vector-borne disease assessments, and emergency disease vector control in the event of vector-borne disease outbreaks, disasters, or other situations where vector control is beyond the scope of local commands.

(6) Defining and coordinating research, development, testing, and evaluation requirements for vector biology and control.

(7) Coordinating pest management guidance with the Navy Resale and Services Support Office (NAVRESSO).

c. The Naval Facilities Engineering Command is responsible for:

(1) Providing on-site assistance, program planning, and technical guidance to Navy and Marine Corps installations as described by enclosure (1).

(2) Maintaining regional training and recertification programs in cooperation with BUMED for civilian applicator personnel and training programs for pest control quality assurance evaluators (PCQAE).

(3) Providing guidance and assistance on procurement and use of wood in structures and treated wood products.

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(4) Initiating and sponsoring applied research, development, testing and evaluation on pesticides, application equipment, and management procedures suitable for shore facility programs.

d. The Office of Naval Research is responsible for supporting basic research on the biology and management of pests.

e. The Naval Sea Systems Command is responsible for:

(1) Conducting or supporting applied Research, Development, Testing, and Evaluation (RDT&E) concerning pesticides, equipment and management procedures for use aboard ship.

(2) Standardizing pesticides and equipment recommended by BUMED for use aboard ship.

(3) Ensuring that pesticide use at Navy Industrial Reserve Ordnance plants is reported to the appropriate NAVFACENGCOM Engineering Field Division consistent with enclosure (1).

f. The Naval Supply Systems Command is responsible for:

(1) Stocking, procuring, and controlling issue of pest management items.

(2) Safe storage of pesticides in accordance with federal law, reference (d).

(3) Providing a quality assurance program for stored product protection from pests.

(4) Providing RDT&E coordination with other commands or agencies for pest prevention and control technologies related to storage of products.

g. The Naval Air Systems Command is responsible for:

(1) Stocking and procuring equipment for disinsection of aircraft.

(2) In coordination with BUMED, providing RDT&E services for development of equipment for pesticide dispersal by military fixed and rotary-winged aircraft.

(3) Ensuring that pesticide use at Navy Weapons Industrial Reserve Plants is reported to the appropriate NAVFACENGCOM Engineering Field Division consistent with enclosure (1).

h. Commanders and Commanding Officers of Shore Activities, and Units of the Operating Forces Stationed Ashore are responsible for:

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(1) Developing, budgeting, and implementing pest management programs described in Part 1 of enclosure (1).

(2) Designating an activity pest manager (APM) to develop, coordinate, and manage the installation pest management program.

i. Commanding Officers of Navy Vessels are responsible for developing and implementing programs as prescribed in Part 2 of enclosure (1) to control pests aboard ship.

8. Action. Commanders of all echelons of command shall comply with the requirements of this instruction.

9. Reports and Forms

a. Symbol DD-P&L(A&AR)1080(6250) is assigned to the requirement contained in enclosure (1), paragraph 14 and is approved for three years from the date of this directive.

b. NAVFAC 6250/2 (11-86) (Indoor Operations) S/N 0105-LF-062-5020 and NAVFAC 6250/3 (11/86) (Outdoor Operations) S/N 0105-LF-062-5030, are available in supply channels in accordance with NAVSUP P-2002.

c. Pesticide Applicator Certificates of Competency (DD 1826) and Certificates of Training are available from BUMED or NAVFACENGCOM pest management consultants upon completion of DOD training requirements.



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Deputy Chief of Staff for Installations  
and Logistics



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All Divisions of OPNAV

Allegheny Ballistics Laboratory  
 c/o DCMR Pittsburgh  
 Federal Building  
 1000 Liberty Avenue  
 Pittsburgh, PA 15222

Naval Industrial Reserve Ordnance Plant  
 c/o NAVPRO  
 Hercules Aerospace Division  
 PO Box 157  
 Magna, UT 84044

Naval Weapons Industrial Reserve Plant  
 c/o DCAS PRO, Teledyne CAE  
 1330 Laskey Road  
 Toledo, OH 43612

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Naval Weapons Industrial Reserve Plant  
Bethpage, NY  
c/o NAVPRO  
Grumman Aerospace Corporation  
Bethpage, L. I., NY 11714-3593

Naval Industrial Reserve Ordnance Plant  
c/o NAVPRO  
Northern Ordnance  
4800 East River Road  
Minneapolis, MN 55421

Naval Weapons Industrial Reserve Plant  
McGregor, TX  
DCMR Fort Worth  
819 Taylor Street, Rm 9A09D  
Fort Worth, TX 76102

Naval Weapons Industrial Reserve Plant  
Bristol, TN  
c/o DCMR Atlanta  
805 Walker Street  
Marietta, GA 30060

Naval Weapons Industrial Reserve Plant  
Naval Plant Representative Office  
McDonnell Douglas Corporation  
P. O. Box 516  
St. Louis, MO 63166

Naval Industrial Reserve Ordnance Plant  
St. Paul, MN Sperry Univac  
c/o DCMR Twin Cities  
2305 Ford Parkway  
St. Paul, MN 55116

Naval Weapons Industrial Reserve Plant  
Dallas, TX  
c/o AF Plant Representative Office  
LTV Aerospace and Defense Company  
Dallas, TX 75265-5907

Naval Industrial Reserve Ordnance Plant  
c/o AF Plant Representative Office  
Aerojet-General Corporation  
P. O. Box 15846  
Sacramento, CA 95813

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Naval Industrial Reserve Ordnance Plant  
Rochester, NY  
Eastman Kodak Company  
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Syracuse, NY 13204

Naval Weapons Industrial Reserve Plant  
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## NAVY AND MARINE CORPS PEST MANAGEMENT PROGRAMS

## Foreword

Although there are many ways to control pest problems, the use of pesticides is frequently selected. Public concern over extensive use of these persistent and toxic materials and their detrimental effects on human health, wildlife resources and other environmental components demand that we provide continuous professional review and training in selection and application of sound control measures. Pesticides are unique because they are purposely released into the environment to affect pest plants or animals and simultaneously may become an environmental contaminant. It is our expertise that not only determines their efficacy, but also minimizes their adverse environmental impact. The objective of pesticide use should be effective pest control with minimal use of the least toxic product available. The Department of the Navy, a steward of 3.9 million acres of land at 278 shore installations and landlord to a million people, shall continue to support these concerns. Program emphasis shall be on professional management of installation pest management programs, control application by or under the supervision of trained and certified personnel, and use of cost-effective strategies, and approved pesticides and equipment. Further, contract operations shall be monitored by quality assurance personnel trained in pest control technology to ensure that the Department of the Navy receives full value.

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NAVY AND MARINE CORPS PEST MANAGEMENT PROGRAMSPART I Pest Management Programs for Shore Installations and Units of the  
Operating Forces Stationed Ashore

1. Responsibilities. Naval Facilities Engineering Command (NAVFACENGCOM) and Bureau of Medicine and Surgery (BUMED) have supporting roles in installation pest management programs. At the installation level, they are implemented in the Public Works and Medical Departments, respectively, and they shall be clearly defined in the installation pest management plan. The following is the general scope of their responsibilities:

A. Public Works. Public Works is responsible for conducting installation pest surveillance and control programs in close cooperation with the Medical Department when pests include potential disease vectors. Within those general guidelines, Public Works provides surveillance of pest populations, planning, performance evaluation, monitoring for effectiveness, and documentation of control efforts; and complying with all appropriate federal and state quarantine measures.

B. Medical Department. The medical department is responsible for:

(1) Performing inspections and surveys to determine the species, source, location, and density of vectors; providing recommendations relating to sanitation standards and practices affecting the presence and abundance of vectors and utilization of vector control methods; evaluating effectiveness of vector control measures; providing information on all appropriate personal protective measures against vectors; coordinating with civilian and other Government agencies having vector control problems that may affect naval personnel at or in the vicinity of a command; and complying with appropriate public health quarantine measures.

(2) Conducting inspections and developing recommendations to ensure that pesticides are used safely following current directives; providing guidance on personal protective measures for personnel whose responsibilities include application of pesticides; and conducting medical surveillance programs for pesticide applicators.

(3) Developing an emergency plan for vector and pest control during a vector-borne disease outbreak or disaster.

C. The medical department may be additionally charged by the commanding officer with the responsibility for all operational phases of the vector control programs in the event of a vector-borne disease outbreak; in the absence of a public works department, i.e., at certain shore installations, onboard ships, and with troops in the field; in the control of vectors actually infesting humans, i.e., lice and mites; and in disasters.

Enclosure (1)

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2. Installation Programs and Pest Management Plans

A. Requirements. Installations that conduct pest control operations, whether by in-house forces or by contract, shall develop, execute and maintain a comprehensive pest management plan (PMP). The PMP shall be specific to the installation, or be a part of an overall plan where pest control is provided by a support installation per Table 1. PMPs for installations that receive pest management support from another installation may be limited to the pest control project sheet(s), as illustrated in appendix B. Installations with more than 0.5 workyears of pest control effort shall have their own plans. Pest control functions performed or contracted by tenant activities shall be performed under the host installation plan. Plans are not required for government-owned contractor-operated facilities but the real property and environmental conditions shall be monitored through triennial, on-site observation by a NAVFACENGCOM pest management consultant (PMC).

B. Preparation. Installation PMPs shall be prepared by an activity pest manager with guidance from the cognizant NAVFACENGCOM or BUMED PMC. Plans shall include scheduled pest control project sheets, illustrated by appendix B, to identify the work. Subsequently, only new or deleted projects shall be submitted for the annual review/approval process.

C. Content. All plans shall include a description of related parts of the pest management program, such as role in mission support, significant health, economic, environmental, and regulatory issues, staffing, and resources. The plan shall address both current and anticipated problems. Control measures shall emphasize an integrated approach and preventive or scheduled maintenance based on prior and ongoing surveillance. The minimum requirements for installation plans are:

(1) Definition of the pest management requirements described in an integrated approach based on prior and ongoing surveillance and with a format that includes target pest, specific location, schedule, surveillance procedures, surveillance and treatment schedules, pesticides to be used, if any, and pertinent issues such as safety, health, and environmentally sensitive areas. Pest management work should be identified using the format illustrated in appendix B.

(2) Annual summary of previous pest management operations such as those prepared through the Navy Pest Management Data System.

(3) Identification of resources and staffing levels for applicator, supervisory, and pest control quality assurance evaluator (PCQAE) personnel.

(4) Validation for required aerial pesticide application projects.

D. Approval. Plans shall bear review signatures of the installation public works officer and medical officer, and the cognizant NAVFACENGCOM and

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TABLE 1 STAFFING, PLANNING, AND REVIEW OF  
INSTALLATION PEST MANAGEMENT PROGRAMS

<u>Pest Control Workload in Workyears*</u>	<u>Minimum Number of DOD, State, or Environmental Protection Agency Certified Pesticide Applicators**</u>	<u>Installation Pest Management Plan***</u>
Less than 0.25	None, unless restricted-use or state-limited use pesticides are required or sensitive conditions exist, such as if endangered or threatened species are present.	Individual plan may not be required if function is included in a supporting lead installation's pest management plan. See also ****.
0.25 to 0.5	One applicator	As above
0.5 to 1.5	One applicator	Plan required
1.5 to 3	Two applicators	Plan required
4 or more	80% of the Pest Control Work Force	Plan required

\* Calculate productive time (1768 hrs/workyear) required for pest management and related functions such as quality assurance, supervision, and refresher training. Exclude annual, sick, and administrative leave.

\*\* Public works lead installations shall be reviewed separately from customer installations. Each customer installation shall have its own plan. Combined, the customer installations determine the staffing requirements for each public works lead.

\*\*\* Plan may be required dependent upon pesticides used. On-site reviews shall be made annually unless all of the criteria for review over two years are met. The criteria for on-site reviews are described in paragraph 2F(2) and Table 2.

\*\*\*\* The requirement for applicator certification and a plan for installations with less than 0.25 workyears in pest control and related functions shall be established at the discretion of the cognizant PMC on a case by case basis.

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TABLE 2 INSTALLATION PROGRAM REVIEW CRITERIA

Pest management program reviews shall be annual unless all of the following criteria apply.

1. The installation has a fully coordinated and implemented pest management plan in effect. Coordinated refers to establishing liaison with housing; medical, including industrial hygiene; special services; natural resources; supply; security; fire protection; and state regulatory authorities (if required), as well as the NAVFACENGCOM and BUMED PMCs. Implemented means the plan has been approved by the commanding officer and bears the approval signatures listed in Part I2d.
2. The number of DOD certified pesticide applicators on board is adequate to support the pest control function, or if the function is performed by contract, sufficient quality assurance evaluators trained in pest control (PCQAE) to evaluate contract performance, as identified by a work analysis.
3. Accurate records are maintained and operations are reported promptly, as they occur, using NAVFAC Forms 6250/2 and 6250/3, described in appendix C.
4. All deficiencies noted in previous reviews have been corrected or action has been taken to correct the deficiencies.
5. No deficiencies exist in the following pest management areas:
  - A. Major structural or commodity losses in accordance with DOD 4150.7 of 24 October 1983 (NOTAL);
  - B. The potential for vector-borne disease transmission is low;
  - C. No major pesticide episodes, such as shop fires, spills, poisonings, or pollution events have occurred since the last review; or
  - D. No complaints or violations concerning pest control identified by federal or state regulatory agencies since the last review.
6. Stored products at the installation do not include contingency stocks of Meal, Ready-to-Eat (MRE) rations. Where contingency MRE rations are held at supply depots and logistics bases, protection programs shall be reviewed annually due to continual introduction of new rations and the value of materials at risk from insect and rodent damage. The program for protection of MRE rations is described in appendix D.

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BUMED PMCs. An installation pest management plan is implemented by the signature approval of the installation commander/commanding officer.

#### E. Program Maintenance

(1) On-Site Reviews. Programs and plans shall be maintained through technical on-site reviews by BUMED and NAVFACENGCOM PMCs and under any MOAs in effect. The reviews will determine installation compliance with the plans and projects, evaluate effectiveness of control operations, identify deficiencies, and provide additional recommendations to keep the installation's plan current. Additionally, these reviews shall ensure that installation programs comply with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), Clean Water Act, Resource Conservation and Recovery Act, and Toxic Substances Control Act. Written copies of pest management reviews shall be provided to the installation and other PMC's, as appropriate and to include NAVENVIRHLTHCEN (Code 37) and NAVFACENGCOM (Code 1634). For Marine Corps only, forward informational copies of installation plans and on-site technical reviews to Commandant, U.S. Marine Corps (LFL). Installations shall advise the reviewing PMC of their progress in implementing program recommendations and appropriate corrective actions. Major claimants shall be included in the distribution of technical reviews when repeated deficiencies are found. Additionally, the technical review process shall support information requirements for other related efforts, such as the NAVFACENGCOM Environmental Compliance Evaluation program.

(2) Review Criteria. Generally, installation programs shall be reviewed on-site annually. Established programs shall be reviewed less frequently if the installation meets the criteria described in Tables 1 and 2 for an extended review schedule. More frequent reviews are required for rapidly changing programs or installations with discrepancies.

(3) Plan Revision. To maintain plans in a current state, installation pest management plans shall be revised annually by submission of only new or deleted projects. PMCs should provide review recommendations in the format used in the installation plan. If a major revision is planned, the changes should be prepared in the format illustrated by appendix B to simplify the process in the future.

F. Program Guidance. Overall management and current technical guidance is provided by NAVFACENGCOM and BUMED PMCs. It includes assistance for development of pest management plans, training installation pest control and quality assurance personnel, occupational safety oversight, reviewing pesticides and equipment procurements, monitoring operational reports, reviewing construction and facilities support contracts, and contingency planning. Specifically, BUMED PMC's provide assistance to the installation's medical department in developing, implementing, and reviewing those sections of the PMP that deal with the medical department's responsibilities as described in Section IB. Detailed program guidance is found in NAVFACENGCOM Publication P-380 (NOTAL); Military Entomology Operational Handbook (MO-310) (NOTAL); Wood

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Protection Manual (MO-312) (NOTAL); Weed Control Manual (MO-314) (NOTAL); the Pest Control Quality Assurance Handbook (MO-315) (NOTAL); and the Real Estate Operations and Natural Resources Management Procedural Manual (P-73 Vol. II) (NOTAL).

G. Memoranda of Agreement (MOA). Many installation pest management programs are covered by a memorandum of agreement established between DOD and state regulatory agencies regarding pesticide use. In general, MOAs authorize purchase of restricted-use and state limited-use pesticides at retail outlets, and pesticide use on land owned or controlled by the government within state boundaries. The MOAs also authorize state agency representatives to enter DOD premises as mutually arranged to inspect application equipment and sites, observe pesticide use, and sample for pesticide residues. Under the terms of the MOAs, in the event that significant violations or misuse of pesticides are found, information, results, and records concerning the investigation will be turned over to the U.S. Environmental Protection Agency (EPA) for disposition under federal law. Navy PMCs working where MOAs are established shall attempt to resolve any issues that may arise at the local or state level. Issues that may set a precedent, such as payment of state licensing fees for Navy employees working on federal property, or any issue that cannot be agreed upon locally should be forwarded up the chain of command for resolution. When DOD involvement is required, contested issues shall be presented by NAVFACENGCOM to the Deputy Assistant Secretary of Defense for Environment via the Armed Forces Pest Management Board (AFPMB). Separate MOAs concerning pest management shall not be entered into without coordination with and concurrence of the AFPMB.

### 3. Personnel

A. Staffing. Staffing for pest management functions is based on several factors including military operations, type and amount of real property, human population at risk from pest attack, and environmental conditions. Where the annual work amounts to 0.25 work years or more, at least one certified pesticide applicator for in-house forces or one trained PCQAE is needed. A second applicator or PCQAE is strongly recommended to provide continuity if the work exceeds 1.0 work years. Guidance on minimum pesticide applicator and PCQAE staffing levels is given in Tables 1 and 3, respectively. As needed, a workload analysis including preparation of Most Efficient Organization (MEO) estimates as required by OMB Circular A-76 (NOTAL) are prepared by NAVFACENGCOM PMCs.

B. Competency. All pest control personnel shall be trained and 80 percent of an in-house work force shall be certified under DOD pesticide applicator competency standards, especially if the installation has both indoor and outdoor pest control functions. A fully trained and certified work force is desired since they can provide responsive, effective and flexible services. For operations conducted by commercial services, quality assurance evaluators shall be specifically trained in pest control contract performance evaluation.

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C. Selection. The preferred minimal educational achievement for pest control personnel is a high school diploma or equivalent. Candidates will be expected, at the full performance level, to understand and follow pesticide labels and labelling, calculate formulation problems, calibrate equipment to specific dosage rates, and shall be able to obtain a driver's license. Candidates shall be physically able to use a respirator without interference from facial hair. Candidates new to Federal service will be conditionally employed for one year to allow for evaluation as a pest controller. All candidates shall successfully complete the training necessary to reach the full performance level, i.e., on-job-training (OJT), correspondence training, and certification as a DOD Pesticide Applicator.

D. Training. Navy military and civilian personnel shall be trained under the DOD Plan for Certification of Pesticide Applicators, reference (c). Such training includes correspondence training, OJT, and attendance at a pesticide applicator certification course sponsored by a DOD training center. These courses shall be conducted following references (a) and (c). Installations shall use an OJT program developed in coordination with the PMCs for new pest control personnel. Enrollment approval by a DOD PMC is required for correspondence training and for initial training courses leading to DOD certification offered by the DOD training centers. Successful completion of a correspondence course is required for candidates before attempting initial core and category training at a DOD training center. Training for overseas installations under FIFRA and non-FIFRA jurisdiction shall be conducted under reference (c). Separate initial training shall be provided for pesticide applicators and quality assurance evaluators since one emphasizes procedures and techniques and the latter emphasizes performance evaluation.

E. Recognition. A DOD Certificate of Competency (DD Form 1826) will be issued to pesticide applicators by PMCs only upon completion of certification requirements as outlined in reference (c). It becomes valid with the signature of the installation commander/commanding officer. A letter for completion of training will be given to PCQAEs. Both types of recognition shall be valid for three years unless revoked.

F. State Certification. Efficient management virtually requires DOD training and certification for Navy personnel. The DOD Certification Plan, reference (c), is recognized by the EPA as fulfilling the requirements of FIFRA and it meets or exceeds the quality of many state programs which vary considerably. All issues concerning state certification of DOD pesticide applicators shall be directed to NAVFACENGCOM Code 1634 via the cognizant NAVFACENGCOM PMC.

4. Facilities and the Workplace. Pest control operations performed by station forces shall be directed from a shop designed for this function. Design, construction, operation, and maintenance of Navy pest control shops shall be in conformance with state regulations as appropriate, and Federal regulations; i.e., OPNAVINST 5100.23B, 29 CFR 1910, Resource Conservation and

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Recovery Act, Clean Water Act, Safe Drinking Water Act, Toxic Substances Control Act, and the National Environmental Policy Act. Guidance on these technical areas and information on pesticide use, storage, and disposal is available from the NAVFACENGCOM Engineering Field Divisions (EFD). New shops shall be isolated from other structures or shop functions for security, fire safety, and to minimize human exposure to pesticides. Existing non-conforming shops may remain if the shop has a separate ventilation system and spill containment, (curbing or sloped flooring and drains, if present, are closeable). Separate ventilation systems, designated "clean" and "chemical" areas, and specialized disposal procedures shall be addressed in designing and maintaining a pest control facility. Adequate facilities for formulating pesticides, rinsing containers, and personal washing and showering shall be available. Individuals working with pesticides shall be supplied with personal protective materials and equipment, emergency decontamination facilities, and separate laundry facilities for work clothing. Shops are subject to Navy Occupational Safety and Health (NAVOSH) standards and pesticide handling procedures are subject to EPA regulation. Workplace safety shall be monitored through industrial hygiene surveys provided by the medical department. Single-purpose trucks (not passenger vehicles or vans) equipped with lockable compartments shall be provided. Pesticides shall not be transported or stored in the passenger compartment. Personal protective equipment shall be segregated at all times, except when in actual use at the job site, from stored pesticides and application equipment. Detailed information on the design and operation of pest control facilities and workplace requirements is found in Military Handbook 1028/8 (NOTAL).

## 5. Safety and Health

A. Industrial Hygiene. Under OPNAVINST 5100.23B, Chapter 5, pest control operations shall be thoroughly evaluated to accurately identify and quantify potential health hazards. Industrial hygiene functions to accomplish that evaluation include workplace assessment, exposure assessment, a workplace monitoring plan, monitoring records, exposure evaluation, and periodic evaluations.

B. Personal Protection Equipment. Appropriate personal protective devices, i.e., face shields, respirators, eye protection, impervious gloves, and protective clothing, shall be used by personnel engaged in pesticide application. Occupational Safety and Health Standards in 29 CFR 1910, Material Safety Data Sheets (MSDS), OPNAVINST 5100.23B, and the pesticide label establish the requirements for protective equipment. Respirators shall be selected from those approved by the National Institute of Occupational Safety and Health for the pesticides used. Pesticide applicators who need respirators shall not be permitted to have facial hair that comes between the skin and the sealing surface of the respirator. Guidance for selection of essential pest control protective equipment shall be obtained from the cognizant BUMED or NAVFACENGCOM PMC or installation industrial hygienist or safety officer.

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C. Medical Examinations. The medical department shall provide appropriate medical surveillance for Navy, Marine Corps, and civilian personnel engaged in routine pest control operations. Guidance for the surveillance shall be provided by the Bureau of Medicine and Surgery (BUMED) and the Navy Environmental Health Center (NAVENVIRHLTHCEN). Medical surveillance is primarily directed toward the measurement of cholinesterase activity to estimate inhibition by organophosphate and carbamate compounds. The following guidelines shall be followed:

(1) Baseline plasma (or serum) and RBC cholinesterase levels shall be determined for all pesticide applicators. The baseline values shall be the average of two or more tests taken at least 72 hours but not more than 14 days apart. If the difference between the two tests exceeds 15 percent, a third baseline level shall be obtained. The true baseline value will be the average of the two closest values. Baseline testing should be obtained when the worker has had no exposure to cholinesterase inhibitors for at least 30 days. When circumstances preclude a 30 day exposure-free period, levels shall be drawn after the longest exposure-free period available, with notation in the medical record as to when the last exposure occurred.

(2) All personnel who handle organophosphate or carbamate pesticides labeled "DANGER" or "WARNING" for any part of the day for seven or more days in any 30 day period shall have periodic plasma and red blood cell (RBC) cholinesterase tests performed according to the following schedule:

(a) test every two weeks - individuals exposed to pesticides labeled "DANGER" during any part of three or more days per week.

(b) test monthly - individuals exposed to pesticides marked "DANGER" during any part of two or fewer days per week; and those individuals exposed to pesticides labeled "WARNING."

(3) The above frequency of testing applies only during the period that the worker is exposed during seven or more days in any 30 day period.

(4) Personnel who only handle pesticides labeled "CAUTION," regardless of the frequency, and those who handle pesticides labeled "DANGER" or "WARNING" less frequently than described above shall have plasma and RBC cholinesterase tested at least annually, preferably during the season in which the greatest exposure to organophosphate or carbamate pesticides occurs.

(5) Cholinesterase testing shall be performed any time a worker develops signs or symptoms of toxicity. In the event of accidental exposure, such as spills or splashes, immediate testing is indicated. Since carbamates cause short-lived depression in cholinesterase levels, it is imperative to draw and test blood within four hours of exposure.

(6) A drop to 80 percent or less of a worker's baseline plasma or RBC cholinesterase level shall require prompt retesting. If confirmed, workplace

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practices shall be investigated. A decrease to 70 percent or less of a worker's baseline RBC cholinesterase or 60 percent or less of the plasma cholinesterase baseline indicates a need for immediate removal from all exposure to cholinesterase inhibitors until parameters return to at least 80 percent of the baseline level.

(7) There is marked variation among different cholinesterase testing methods and laboratories using the same method. To ensure reliability, cholinesterase testing for a given individual shall be performed in the same laboratory using the same method whenever possible.

D. Pesticide Labels. All pesticide containers shall bear an EPA approved label (applies only to installations located in areas under U.S. EPA jurisdiction). Service containers used for formulating or transporting pesticides at the job site shall be marked with the appropriate signal word (DANGER, WARNING, or CAUTION), the identification of the pesticide and the concentration, and the identification and location of the person responsible for the container. A copy of the complete EPA label for each pesticide use shall be available at each mixing site. Other labels, such as Department of Transportation placards or National Fire Protection Association labels, if required, shall not be placed so as to obliterate the pesticide label information.

E. Material Safety Data Sheets (MSDS). Pest control facilities shall maintain an MSDS for each pesticide formulation stored or used at the installation. Pesticide applicators shall be familiar with the MSDS information for any pesticide to which they may be exposed in the workplace. That information shall be readily accessible to all pesticide applicators during their working hours.

## 6. Pesticides

A. Stocking. Standard stock pesticides are listed in the DOD Section of the Federal Supply Catalog, Class 6840. Nonstandard items are those listed in the General Services Administration catalog and all open-purchase items.

B. Procurement. The procurement of pesticides is controlled and pesticide requisitions must be approved by a PMC. For shore installations, a list of the pesticides needed for their pest control program shall be prepared annually and submitted to the cognizant NAVFACENGCOM PMC as a part of the installation pest management plan. The list shall include the pesticide name, formulation, approximate cost, application site and the target pest. If additional pesticides are required after the annual list has been prepared, amendments shall be approved by the same process. A similar review and approval process is required by the cognizant BUMED PMC for procurements from deployed units or for their own uses. For shipboard use, only those pesticides and equipment approved by BUMED shall be used. Prior to submission, all requisitions for nonstandard pesticides and equipment, and requisitions for all pesticides and equipment not currently approved for shipboard use, shall be forwarded to the cognizant Navy Disease Vector Ecology and Control Center

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(NAVDISVECTECOLCONCEN) or Navy Environmental Preventive Medicine Unit (NAVENPVNTMEDU) for review and approval. A justification for procurement shall include the target pest problem, application site description, rate of application, and reason why currently approved materials are inadequate. In any case, supply departments shall not fill pesticide requisitions without approval of the cognizant PMC. Additional limitations on pesticide procurement may be established by NAVFACENGCOM and BUMED.

C. Routine Use. Where alternatives exist, selective or target-specific pesticides shall be used in lieu of broad-spectrum pesticides on Navy and Marine Corps installations and on property under Navy stewardship to minimize adverse effects on the environment. The use of preventive routine or scheduled periodic pesticide treatments is prohibited unless approved by the PMC concerned and based upon surveillance information or past pest problems. When pesticides are used, they shall be limited to the least amount needed for effective control. Accordingly, installation pest controllers are not limited to the Federal Supply Catalog items, if other more desirable materials are available through open purchase as long as they are (a) approved by a PMC, and (b) appropriately identified in the installation's pest management plan. PMCs shall consider the risks and benefits of pesticide use on a case-by-case basis. The overall effects of pesticide use shall be identified in developing programs and strategies for cost-effective control in installation programs.

D. Overseas Use. Pesticide procurement, use, and disposal in foreign countries, while not directly subject to EPA regulations under FIFRA, shall comply with the statutes and regulations of foreign host nations, or FIFRA, whichever is more stringent. To the extent practicable, installations shall provide environmental and pollution abatement measures equal in degree and timing to those of the host nations. Where host country restrictions are not established, the requirements of this instruction shall apply under the status of forces agreement.

E. Pesticides in Resale Facilities. Pesticides displayed for sale in Navy and Marine Corps resale facilities shall be on shelves separate from food sale shelves in a location where pesticide container breakage will not result in foodstuff contamination.

F. Spills. Pesticide spill management shall be addressed in the installation PMP, and the issue shall be coordinated with the installation's hazardous materials/waste programs. Pesticide spill kits shall be ready-to-use in every pesticide storage/mixing facility and in vehicles used to transport or apply pesticides. EPA regulations require the reporting of any spill which may enter ground water, surface water, or potable water supplies. Spills shall be reported immediately by telephone to the installation on-scene manager for oil and hazardous substance spills, and within five work days to the cognizant PMC.

G. Aerial Application. Aerial pesticide applications are often required for area control of insects, related arthropods, and weed control. However,

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since a large part of the environment will be exposed to the pesticide, aerial dispersal shall be performed only after the risks and benefits of such an application have been carefully evaluated. Further, the proposed operation must have coordination with the appropriate Federal, State, or local authorities. Aerial application projects, prepared in accordance with reference (a), shall be reviewed and approved by a PMC certified for aerial application pest control. If suppression of potential disease vectors is involved, the operation shall be validated and coordinated by a BUMED PMC and NAVFACENGCOM PMC, respectively. Approvals shall be obtained prior to applications and the projects shall be amended to the installation's PMP. Before beginning those control measures, the commander or commanding officer may be required by local or state regulation to obtain a written agreement from applicable authorities and waiver of claim ("hold harmless") from each adjacent property owner.

H. Secondary Poisoning. Some pesticides exhibit secondary poisoning in non-target animals or plants and the use of these pesticides shall be carefully monitored to minimize damage to non-target organisms. Pest controllers and PMCs shall select materials best suited for the control program, identify the potential for secondary or non-target effects, and design programs to preclude or minimize the risk of such efforts.

#### I. Disposal

(1) General. Disposal of pesticides, their containers, and related wastes is closely regulated and the technology for disposal is changing rapidly. General guidance for hazardous wastes includes minimization by saving rinse water to formulate subsequent pesticides, ordering, and mixing only what is needed for the mission, and disposing of any hazardous waste in accordance with the installation hazardous waste management plan. Guidance for disposal is provided through the cognizant PMCs on a case-by-case basis. Pesticide pollution abatement ashore is also addressed in reference (e).

(2) Administration Procedures. When EPA regulations are issued to cancel or restrict the use of a pesticide, an expensive disposal problem may develop if installations do not immediately cease procurement and exhaust current stocks of the pesticide, if permitted. In such situations, Navy commands shall be advised of the EPA suspense date, and whatever action is required for the proper disposal of the pesticide. The alternatives, to either exhaust stocks through use or to return material to the Defense Reutilization and Marketing Offices, shall be determined by the Armed Forces Pest Management Board and the Defense Logistics Agency based on inventories prepared by the installations. Guidance for disposal actions will be disseminated through the cognizant PMC.

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7. Equipment

A. Procurement. Pesticide application and shop equipment items are listed in the Federal Supply Catalog Class 3740, with the exception of some large equipment items used for area control such as trailer mounted mist machines, aerosol generators, and tree sprayers. Approval on selection of equipment appropriate for an installation's pest control program shall be obtained from the cognizant PMC. Procurement shall be through normal supply channels. For shipboard use, only those equipment items approved by BUMED shall be used as noted in paragraph I6B.

B. Prohibited Items. Electromagnetic exclusion or control devices, ultrasonic repellent or control devices, and outdoor devices for electrocuting flying insects shall not be used on Navy and Marine Corps installations. Scientific evidence has shown that these devices are not effective pest management tools, do not address the source of pest problems, and are often uneconomical. Furthermore, EPA has taken regulatory action against some of the manufacturers of the devices. Indoor devices for electrocuting flying insects can be effective and may be used when selected, purchased, located, and used in accordance with the AFPMB guidelines and the procurement is approved by the cognizant PMC. This policy is limited to the types of control devices described above and shall not preclude the use of active control efforts such as aerosols, fly swatters, sticky paper, screening and most importantly, source reduction. Pest surveillance traps and monitoring equipment, such as non-electrocuting mosquito light traps, may be routinely used by trained personnel and are not restricted by this instruction.

8. Commercial Services. Commercial (contract) services are available for nearly every type of pest problem encountered. Such services shall be obtained when justified by a cost study. Whenever possible, the contract shall be limited to pest control and not combined with other services because of the need to obtain qualified licensed and certified pesticide applicators by the EPA or state regulatory agencies. Where pest control is performed as part of a grounds maintenance or Base Operating Support (BOS) contract, the specification must clearly indicate that subcontractors shall meet state and federal requirements prior to awarding the prime contract. In some states the prime contractor may be required to have an employee who is trained and appropriately certified and subcontracting for this service will be in violation of state regulation.

A. Performance Work Statement. Installation contracts for pest control services shall be developed from a Guide Performance Work Statement (GPWS) for pest control services available from the NAVFACENGCOM EFDs. In all cases, pest control work in the contract shall be consistent with the installation's pest management plan, and federal and state regulations.

B. Review. Contract specifications for pest control services shall be reviewed and approved by the cognizant NAVFACENGCOM PMC prior to solicitation.

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C. Qualification. Contractors must show evidence, before a contract is awarded, that they hold licensing and certification in the state where the work will be done and in the specific pest control categories for services to be provided, i.e., structural, public health, household, aquatic, right-of-way, fumigation, turf and ornamental, agricultural, and others as established by EPA under reference (c) or the states concerned. In some states, contractors may not submit bids or proposals for pest control work without appropriate state licensing and this applies to both prime and sub-contractors. Such situations are identified in the review process.

D. Performance and Supervision. The application of pesticides under contract shall only be made by certified applicators, or under the direct supervision of a certified applicator who is in line-of-sight and in direct communication with the applicator.

E. Quality Assurance. Contract pest control services shall be evaluated by quality assurance evaluator personnel specifically trained in pest control technology or pest control quality assurance evaluator (PCQAE) in accordance with the DOD Pest Management Program, reference (a), and this instruction. Pest Control Quality Assurance Evaluators (PCQAE) shall use the quality assurance guide provided in the PWS, the information in Table 3, or information provided by the cognizant NAVFACENGCOM PMC. Additional guidance is provided in MO-315 (Pest Control Quality Assurance Handbook) (NOTAL).

F. Contractor Training. At the discretion of the cognizant PMC contractor personnel may be authorized to attend DOD training courses at the contractor's expense. They may be DOD certified for unique situations such as overseas where there is no regulatory authority in force.

9. Self-Help Pest Control. Self-help pest control programs for household pests such as cockroaches, ants, and silverfish shall be established in family housing and unaccompanied personnel housing. Occupants are responsible for maintaining good sanitation and shall make a reasonable attempt to bring nuisance pests under control before requesting assistance or services. If the efforts fail, occupants shall be assisted with on-site instruction and an additional issue of pesticides. Installation pest control personnel shall conduct nuisance pest control in housing only when occupants are unable to control pest(s) or when government property or occupant health is at risk, i.e., termites, carpenter ants, fire ants, Pharoah ants, wasps, hornets, and turf pests such as mole crickets. Flea control, if associated with pets, shall be the responsibility of the owners and services, if provided by the Navy, shall be at the owner's expense. Pesticides used in self-help pest control programs shall be selected by a NAVFACENGCOM PMC and their use shall be reported in accordance with appendix C. Assistance for establishing and maintaining self-help programs is available from the same source. The Navy Family Housing Manual (NAVFAC P-930) (NOTAL) provides additional information on policies for pest control in family housing.

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10. Government-Owned Contractor-Operated (GOCO) Facilities. Where pest control services are required as part of the maintenance management program on GOCO facilities, the responsibilities of the Navy plant representative are to ensure that:

A. All pesticides applied are reported as outlined in paragraph 14. Contractors shall report the information to the appropriate NAVFACENGCOM EFD via the Navy plant representative.

B. Commercial pest control contractors are qualified to legally perform work on Navy property consistent with paragraph 8.

Additionally, GOCO pest management programs shall be reviewed on-site every three years by a NAVFACENGCOM PMC. The review shall emphasize protection of real property and structures from biological deterioration and lack of maintenance.

11. Operations on Non-DOD Property. Navy and Marine Corps installations are authorized to conduct pest control operations on property not owned by the Department of Defense in the following situations:

A. Control measures are necessary to protect naval personnel. Proper licenses, easements, permits, or clearances shall be obtained before taking action on privately or publicly owned lands to provide protection from claims against the government.

B. Requests for assistance from the U. S. Departments of Agriculture, Interior, and Health and Human Services for community assistance with pest control services shall be submitted for approval by the Secretary of the Navy through normal command channels. Technical assistance in preparing requests is available from NAVFACENGCOM PMCs, Navy Environmental and Preventive Medicine Units (NEPMU), and Navy Disease Vector Ecology and Control Centers (DVECC). The costs of such operations and agreements for the reimbursement of costs are the responsibility of the installation that provides the services.

12. Quarantine Program Support. Commanders and commanding officers shall ensure that their operations do not introduce quarantinable pests into protected regions, foreign or domestic. All echelons of command shall fully cooperate with officials of governmental agencies, foreign and domestic, responsible for quarantine of agricultural or public health pests. Installations shall provide inspection support; and procure pesticides, equipment and other material necessary to comply with quarantine requirements. Quarantine requirements shall be identified in installation pest management plans.

13. Environmental Protection

A. General. It is the policy of the Navy to protect the environment and conserve natural, historic, and cultural resources. Wetland areas, especially, consisting of marshes, lakes, streams, tidal flats, bays, and

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TABLE 3 QUALITY ASSURANCE STAFFING GUIDANCE FOR  
CONTRACTING PEST CONTROL SERVICES

Quality assurance evaluators trained in pest control technology or PCQAEs shall evaluate the performance of commercial pest control services. Their responsibilities are to ensure that work is done in a safe and legal manner consistent with the label of the pesticide used, applicable state regulations, and the contract specifications. PCQAE staffing is based on a number of factors related to the contract, i.e., the number of pest control operations requiring inspection; number of different pest control functions being performed simultaneously; size of the contract (productive workyears); and the level of surveillance required for each operation.

The allowances for contract administration in OMB Circular A-76 (NOTAL) are waived for small pest control functions (10 or fewer full-time equivalents). These small functions are allowed up to 10 percent of the contract cost for administration, reference (e). The Quality Assurance Surveillance plan must support the use and number of quality assurance evaluators.

A sufficient number of PCQAEs shall be available to inspect each operation if several operations are conducted simultaneously or if operations are performed that require 100 percent inspection. Planned sampling is the preferred method of surveillance for installations since the quantity of work does not warrant random sampling. Use the following guidance or consult with the cognizant PMC to determine the minimum number of PCQAEs required.

PCQAE STAFFING (PLANNED SAMPLING ONLY)

Surveillance Level	Productive Workyears of Pest Control Work	Number of PCQAEs
Reduced . . . . . (Contractor performance known and satisfactory)	Less than 20 . . . . .	1
Normal . . . . . (Contractor performance unknown) . . . . .	Less than 10 . . . . . More than 10 . . . . .	1 2
Increased . . . . . (Contractor performance not satisfactory)	Less than 5 . . . . . 5 to 10 . . . . .	1 2
. . . . .	More than 10 . . . . .	3

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estuaries are the final resting place for many environmental contaminants. These areas are sensitive ecosystems providing habitat for many species of plants and animals, including endangered and threatened species. Federal and state law requires protection, management, and prevention of adverse effects from runoff into these sensitive ecosystems. Naval operations and especially pest management operations shall comply with the requirements of the Coastal Zone Management Act; Endangered Species Act; Marine Protection, Research and Sanctuaries Act; Farm Bill; Exclusive Economic Zone; Marine Mammal Protection Act; and the National Environmental Policy Act. Pest management programs shall not be implemented without careful planning to avoid or minimize pesticide pollution. See also paragraph 6C on pesticide use.

B. Endangered and Threatened Species. The protection of certain species of plants and animals on the brink of extinction requires additional coordination. These organisms, identified by the U.S. Fish and Wildlife Service (FWS), are protected from actions that might further reduce the population. Installation pest management plans shall include protection measures and shall be coordinated with the installation natural resources program and FWS if it is necessary to apply regulated pesticides within the range of endangered species. To preclude consultations prior to every application of an affected product, pertinent portions of an installation pest management plan shall be coordinated with the regional FWS office via the installation environmental support office each year. Any proposed action which may affect listed species will require direct consultation with the FWS. No exceptions to the decisions of the FWS shall be requested without approval by the cognizant PMC.

14. Record Keeping and Reporting. All shore installations and units performing pest control operations shall maintain daily records of pesticide applications and submit reports of pest management operations for review by the cognizant PMC. The report shall include all pest control operations conducted on Navy and Marine Corps property and non-Navy property under Navy stewardship performed by lessees, including government-owned contractor-operated (GOCO) facilities and land-use permit holders. Reporting operations performed by persons directly for their own personal relief within quarters is excluded. Time spent by the government for managing self-help programs and the pesticides used in self-help operations shall be reported. Appendix C provides guidance on recording and reporting pest management operations. Report control symbol DD-P&L(A&AR)1080 applies.

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PART II Shipboard Pest Management Programs

1. Background. References (a) and (c) describe Department of Defense policy and training requirements for pesticide applicators. Reference (c) specifically permits medical department personnel to be site-trained to apply pesticides aboard ship. Individuals certified in shipboard pest control are restricted to using procedures, equipment, and pesticides approved for use aboard ship.

2. General. BUMED evaluates all pest control procedures, pesticides and equipment before they are approved for use aboard ship; reviews and evaluates new pest management technology for applicability to shipboard pest management programs; monitors and evaluates shipboard pest management programs, and provides training/certification of ships personnel. BUMED P-5010 (NOTAL) provides specific information on shipboard pest control.

3. Technical Assistance. Technical assistance and training on all aspects of shipboard pest management are available from medical entomologists at the following locations:

A. Navy Disease Vector Ecology and Control Center (NAVDISVECTECOLCONCEN), Naval Air Station, Alameda, CA 94501. (Also program manager for entomological studies in support of the Fleet.)

B. Navy Disease Vector Ecology and Control Center (NAVDISVECTECOLCONCEN), Naval Air Station, Jacksonville, FL 32212. (Also program manager for entomological studies in support of the Fleet Marine Forces and Shore Establishment.)

C. Navy Environmental and Preventive Medicine Units (NAVENPVNTMEDU) No. 2, Naval Base, Norfolk, VA 23511; No. 5, Naval Station, San Diego, CA 92136; No. 6, Naval Station, Pearl Harbor, HI 96860; and No. 7, FPO New York 09521 (Naples, Italy). (Services include shipboard assistance.)

D. Naval Medical Branch Clinic, U.S. Naval Station, FPO San Francisco 96651 (Subic Bay, Philippines). (Services at this location may be limited by local or operational commitments. Routine services should be obtained prior to deployments from the cognizant NAVENPVNTMEDU or NAVDISVECTECOLCONCEN.)

4. Commanders of Forces Afloat Responsibilities. Commanding officers of naval vessels shall:

A. Establish and maintain a safe and effective program to control insects, rodents, and other pests affecting the health and well-being of personnel, and to prevent loss of material.

B. Ensure that the senior enlisted medical department representative and the corpsman responsible for pest control receive shipboard pest control training once a year. A course in shipboard pest management is available from

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the NAVENPVNTMEDUs and NAVDISVECTECOLCONCENS. Only medical department personnel who successfully complete the shipboard pest management course will be certified. Certified personnel are qualified to procure standard stock pesticides approved for use aboard ship and to conduct or supervise shipboard pest control operations under current BUMED directives. Records of pest control operations and documentation of training and certification shall be recorded in a separate pest control log.

C. Receive technical guidance from the Bureau of Medicine and Surgery to include planning and accomplishing shipboard pest management programs, pest control, training for fleet personnel, and technical review of requisitions for equipment and pesticides.

D. Ensure that only pesticides and equipment for pest management approved by BUMED are stored and used aboard ship under Part I, paragraph 6B and 7A of this instruction.

E. Implement a control program for meal, ready-to-eat rations, as required, to prevent losses caused by pest infestation or damage. See appendix D.

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Enclosure (1)

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## DEFINITIONS AND ACRONYMS

1. Definitions.

Activity Pest Manager. A DOD-certified employee designated by the installation commanding officer, responsible for developing and coordinating the installation pest management plan.

Area Medical Entomologist. The senior uniformed Medical Service Corps entomologist designated by the Navy Environmental Health Center to provide technical service for a given geographic area.

Direct Supervision. Management control by a responsible individual who is on-site and in visual and voice communication with the applicator.

Disease Vector. Any animal capable of transmitting the causative agent of human diseases; serve as intermediate or reservoir hosts of pathogenic organisms, or being capable of producing human discomfort or injury, including but not limited to mosquitoes, flies, other insects, ticks, mites, snails, and rodents. It is recognized that certain disease vectors are predominantly economic pests that as conditions change may require suppression as a disease vector.

Disinsection. The procedure of killing or removing insects from ships or aircraft to prevent their importation into another port or country.

Integrated Pest Management (IPM). A comprehensive approach to pest management or prevention that includes various chemical, physical, and biological suppression techniques, the habits of the pest, and the environment. IPM programs emphasize preventive (planned) pest control measures in lieu of corrective (unplanned) measures wherever cost effective.

Pest. Arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds, and other organisms (except for human or animal disease-causing organisms) that adversely affect military operations, the well-being of man and animals; attack real property, supplies, or equipment; or are otherwise undesirable. See also "disease vectors."

Pest Control Quality Assurance Evaluator (PCQAE). Installation personnel, trained in both quality assurance evaluation and pest control technology whose duties require surveillance of pest control contracts to assure performance complies with the specifications.

Pest Controller. The Office of Personnel Management title for individuals who work under Job Standard 5026 in pest control functions, is a pesticide applicator or pest control operator. See also "pesticide applicator."

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Pest Management Consultant (PMC). PMCs are technical specialists who have command program oversight responsibilities and provide guidance and information on the management of pest populations for Navy and Marine Corps commands and installations ashore and units afloat. PMCs are trained in biology, medical and economic entomology, or other life sciences. In the Navy, consultants include commissioned medical entomologists in the Medical Services Corps, civilian applied biologists and natural resources specialists of the Naval Facilities Engineering Command.

Pest Management Plan (PMP). A written document for the design, execution, and maintenance of an installation pest control program.

Pesticide. Any substance or mixture of substances that destroys or repels pests; any substance or mixture of substances used as a plant regulator, defoliant, or desiccant. See also paragraph 6A of enclosure (1).

Pesticide Applicator. Personnel trained in pest control technology who apply or supervise the application of pesticides. There are several types all of whom are considered "commercial pesticide applicators" under the Federal Insecticide, Fungicide and Rodenticide Act. DOD military or civilian personnel certified under "DOD Plan for the Certification of Applicators of Restricted Use Pesticides," reference (c), and whose duties include the application of pesticides or supervision of other pesticide applicators. Certified applicators must be qualified in the pest control category appropriate for the work being performed, i.e., structural pest control, ornamental and turf pest control, public health pest control, household pest control, and others. Another type includes civilian or DOD employees who apply pesticides under state certification per reference (d). All certified pesticide applicators must hold certification in the pest control category appropriate for the work. Another type includes uncertified applicators, either military or civilian, who work under the direct supervision of a DOD or state certified pesticide applicator.

Public Works. Navy management organization that provides architectural, engineering, and environmental support for installations; variously called Public Works Department, Public Works Center, Facilities Management, Facilities Engineering, or Base Maintenance (Marine Corps).

Quarantine. The prevention of introduction or spread of diseases and pests of man, animals, plants; and restriction of the movement of plant or animal products internationally or intra-nationally. At times, quarantine is a mandatory procedure required by the U.S. Public Health Service, U.S. Department of Agriculture, foreign governments, or other authorities.

Restricted Use Pesticide. A U.S. Environmental Protection Agency classification for pesticides that may potentially cause unreasonable adverse effects on the environment including injury to the applicator even when label directions

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are followed. EPA restricted use pesticides may be procured and used only by certified pesticide applicators or by persons under their direct supervision.

State Limited-Use Pesticide. A classification used by states to identify pesticides which are state restricted in their use but not necessarily restricted by the U.S. Environmental Protection Agency. As with EPA restricted-use pesticides, state-limited use pesticides may be procured and used only by certified pesticide applicators or by persons under their direct supervision.

## 2. Acronyms

AFPMB . . . . .	Armed Forces Pest Management Board
CA . . . . .	Commercial Activity
CFR . . . . .	Code of Federal Regulations
CHBUMED . . . . .	Chief, Bureau of Medicine and Surgery
CMC . . . . .	Commandant of the Marine Corps
CWA . . . . .	Clean Water Act
DOD . . . . .	Department of Defense
DLA . . . . .	Defense Logistics Agency
DRMO . . . . .	Defense Reutilization and Marketing Office
EFD . . . . .	Engineering Field Division of the Naval Facilities Engineering Command
EPA . . . . .	U.S. Environmental Protection Agency
FACSO . . . . .	Facilities Systems Office
FIFRA . . . . .	Federal Insecticide, Fungicide, and Rodenticide Act
FWS . . . . .	U.S. Fish and Wildlife Service
GOCO . . . . .	Government-Owned Contractor-Operated
IPM . . . . .	Integrated Pest Management
MEO . . . . .	Most Efficient Organization
MRE . . . . .	Meal, Ready-to-Eat (rations)
NAVDISVECTECOLCONCEN	Navy Disease Vector Ecology and Control Center of the Bureau of Medicine and Surgery
NAVENPVNTMEDU . . . .	Navy Environmental and Preventive Medicine Units of the Bureau of Medicine and Surgery
NAVENVIRHLTHCEN . . .	Navy Environmental Health Center, Norfolk, VA
NAVFACENGCOM . . . .	Naval Facilities Engineering Command, Washington, DC
NAVOSH . . . . .	Navy Occupational Safety and Health
NAVRESSO . . . . .	Navy Resale and Services Support Office
NEESA . . . . .	Naval Energy and Environmental Support Office
PWS . . . . .	Performance Work Statement
BUMED . . . . .	Bureau of Medicine and Surgery, Washington, DC
OJT . . . . .	On-job-training
OSHA . . . . .	Occupational Safety and Health Act
PCQAE . . . . .	Pest Control Quality Assurance Evaluator
PMC . . . . .	Pest Management Consultant
PMP . . . . .	Pest Management Plan

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PEST CONTROL PROJECT SHEET

1. Objective (what and why)
  - A. Target pest, life stage(s)
  - B. Purpose of operation and type (preventive or corrective)
  - C. Priority
2. Surveillance (who, how, where, and when)
  - A. Responsible party
  - B. Techniques and procedures
  - C. Location(s)
  - D. Schedule and frequency
3. Treatment or control (who, how, where, and when)
  - A. Responsible party
  - B. Nonchemical strategies
    - (1) Type (preventive or corrective)
    - (2) Method of implementation
    - (3) Site(s)
    - (4) Schedule and frequency
  - C. Pesticide(s) (common name, registration number, formulation, source or NSN, application concentration, dosage rate, method of dispersal, schedule, and frequency of application)
4. Sensitive areas (endangered/threatened species habitats, potable water supplies) to be avoided or treated with caution
5. Manpower Requirement (indicate time needed for the job)
6. Remarks (indicate if project is aerial application,\* related to vector control or contingency requirements, or other unique information)

\*format for approval of aerial application of pesticides is illustrated in enclosure (7) of DOD Directive 4150.7 of 24 October 1983 (NOTAL).

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## RECORD KEEPING AND REPORTING

## PEST MANAGEMENT OPERATIONS

Record-keeping and reporting is required to provide management information and historical records of operations that have been conducted on Navy installations. It is important to know what was done since pesticide use has the potential for significant adverse impact on public health and the environment. In addition, record-keeping is required to develop a maintenance history of structures and other application sites, human exposure data, and to comply with the Federal Insecticide, Fungicide and Rodenticide Act.

All Navy and Marine Corps installations shall maintain daily pest management records and forward copies of the records to the cognizant NAVFACENGCOM Engineering Field Division for management of the Navy program. The information is called the Navy Pest Management Data System and it includes all pesticide applications performed on the installation by non-appropriated fund activities, commercial services, government-owned contractor-operated facilities, agricultural outleases, land management and forestry programs, as well as pesticide use by in-house forces. Report control symbol DD-P&L(A&AR)1080 applies.

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PART I GENERAL INFORMATION

1. Installation Responsibilities. Installations shall keep daily records of pest management operations performed on property under Navy stewardship. The records shall be entered on NAVFAC Forms 6250/2 and 6250/3 for use by pesticide applicators, contractor personnel, and others who perform the work. Each record has two parts. After entry, the top copy of each record is set aside until the accumulated reports are mailed to the appropriate NAVFACENGCOM Engineering Field Division (EFD) applied biologist. Records may be mailed as often as necessary but not less than monthly. Copies may be reproduced from the completed records if additional information copies are needed locally. No cover letter is required. Negative reports are not required. If records are returned for correction after edit by the EFDs, the installation submitting the record shall be responsible for correcting and resubmitting the data on a new record. The bottom (or yellow) copy of each record shall be retained at the installation by the facility performing the work to comply with legal requirements for daily record-keeping.

2. Engineering Field Division Responsibilities. Pest management records shall be optically scanned for input errors by the EFD and valid report data shall be transmitted to the Facilities Systems Office (FACSO) at Port Hueneme, CA, for summary processing. Invalid reports, identified in the scanning process, shall be returned to the originating installation for correction. As summarized records are returned to the EFDs from FACSO, the original input records may be discarded and the applied biologists shall review the summarized information for technical operations, safety, and compliance with the installation's pest management plan. Where unresolved pest problems exist, or hazardous situations or pesticide misuses are identified, the EFD applied biologist shall take appropriate actions to resolve the problems.

3. Coordination. The Naval Energy and Environmental Support Activity (NEESA), Port Hueneme, CA, shall coordinate processing pest management and related data with FACSO. FACSO will receive input data from the EFDs and prepare summary reports. NEESA (Code 110E) will receive and prepare all other information requests and provide summaries of installation operations for installation pest management plans and other management reports.

PART II REPORTING INDOOR PEST MANAGEMENT AND RELATED OPERATIONS

1. Use NAVFAC Form 6250/2 to record indoor pest management operations. Figure 1 illustrates the form for reporting indoor control operations and related pest management functions. Use one form for each pest management operation and use a No. 2 pencil to mark the "bubble" next to your choice of entry in each field on the form. After you have filled out a record, separate the sheets and discard the carbon sheet. At the end of each day, file the bottom (or yellow) copy at the pest control facility, since this is your legal

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record required by federal law for all restricted-use pesticide applications. The yellow copy is also a maintenance record. The copies shall be filed by site (building or grounds area) for recovery of pest management information by site. Use the back of the yellow copy to record any additional details about the operation or site condition, and to show where treatment was applied, if necessary. Save the top copies of the records until the end of each month, then mail them to the EFD PMC.

2. To fill in a record, follow these instructions for each data entry field on the form. Figure 1 illustrates a report of a control operation in family housing for cockroaches using Diazinon insecticide applied manually.

A. Serviced By. Mark the bubble adjacent to appropriate service (Navy or Marine Corps). In the lower part of the same field, mark the choice telling how the work was done.

B. UIC Code. Write in the unit identification code for your installation in the five spaces at the top of the field, then mark the corresponding bubble below each number. If your UIC ends in a letter, do not fill in the bubble below the handwritten letter.

C. Report Date. Write in the date of the operation in the spaces at the top of the field, then mark the bubble below each number. Enter first the month, then the day and year.

D. Time. Write in the time in hours required for the operation, including survey time, preparation time, performance or craft time, delay time, cleanup, and travel time. If you are reporting a combined operation where more than one pesticide or control operation was done on the same job site, you must report them separately and divide the time accordingly. For example if on one job you surveyed for cockroaches, replenished bait stations and serviced snap traps, and the job took 1.5 hours, you must use one report for each task and divide the time into three parts, such as 0.5 hrs for each. If two or more applicators work on the same job, add their time together. Note that you can report tenths of hours. For example, six minutes is 0.1 hrs., 12 minutes is 0.2 hrs., and so on. A table for time conversion is printed on the last page of this instruction and may be removed for field use. Reporting time for contract services is optional. Zero-fill spaces to the right.

E. Pest. Select the target pest. Select only one pest even if you plan to control more than one. If the name of the pest you want is not listed, mark the bubble next to the last choice, "Other pests" and then write in the name of the pest in the space provided.

F. Operation. Only one operation shall be reported on each form. Select the operation performed from those listed on the form. Note also that there are several types of operations.

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U.S. GOVERNMENT PRINTING OFFICE: 1985-165-305 DD-A811AAR 1080 NAVFAC FORM 6250/2 (11/86)

### PEST MANAGEMENT DATA SYSTEM INDOOR OPERATIONS

009664

RESUBMITTAL NUMBER

RESUBMITTAL NUMBER

USE ONLY A NO. 2 PENCIL  
MAKE HEAVY PENCIL MARKS THAT FILL THE OVALS

CORRECT MARK

INCORRECT MARKS

SERVICED BY

ARMY  
NAVY  
MARINE CORPS  
DEFENSE LOGISTICS AGENCY

In-house  
Support Agreement  
Contract

U.I.C. CODE

REPORT DATE

TIME REQUIRED

RESUBMITTAL NUMBER

DO NOT MARK IN THIS AREA

PEST NAME

OPERATION

CONTROL AGENT

FORMULATION

PESTICIDE ERA REG. NO. 464-571

410-W

Naval Station  
1234 Atlantic Hwy.  
Piedmont  
MD 30144  
C. J. Krute  
NJ-127-56-0287

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(1) If you are reporting an indoor or structural control operation your choices are:

Pest Surveillance	Fumigation
Service Surveillance Traps	Pretreatment (termites)
Manual Pesticide Application	Post-construction Treatment (termites)
Fog, ULV, or Space Treatment	Trench Treatment (termites)
Power Pesticide Application	Void Treatment (termites)
Pest Exclusion/Removal	Subslab Injection (termites)
Service Traps	Other Control Operations
Service Bait Stations	Self-Help Operations

(a) Use "Pest Surveillance" to report the monitoring of pest populations to determine if there is a problem. The operation may also be used to report follow-on surveys to determine if treatments were successful. Report any pesticide used in the surveillance effort. You may use the generic term, "All pests" if surveillance involves several pests.

(b) If you are reporting coordination time for supporting self-help control efforts in quarters or offices, select "Self-Help Operations" and fill in all other fields as appropriate. The time used by housing occupants is at no cost to the Navy and is not reported.

(2) If you are reporting an administrative or noncontrol operation your choices are:

(a) Program Administration is time to plan, schedule and supervise work; coordinate operations; procure materials; and report on what has been done. Include leave time.

(b) Maintenance is time to repair and maintain shop facilities, vehicles, and application equipment not related to a specific control operation.

(c) Training is time for improving and maintaining the competency of pest control and quality assurance personnel.

With these three operations do not report target pests, sites, or pesticides. Do report the time. For example, you will see that Figure 2 is filled out to report six hours used by the supervisor to schedule and assign work to the crew.

(d) OAE Inspection is the time required to determine pest control contract performance and for Navy contract management efforts by in-house personnel. Reporting the target pest is optional but do not report the site. However, if a pesticide is used in the course of the evaluation, report it and the site. Do not report a site unless a pesticide was used.

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U.S. GOVERNMENT PRINTING OFFICE: 1988-165-309 DD-A44JABAR 1080 NAVFAC FORM 6250/2 (11/86)

### PEST MANAGEMENT DATA SYSTEM INDOOR OPERATIONS

USE NO. 2 PENCIL ONLY

009667  
RESUBMITTAL NUMBER

MARKING INSTRUCTIONS  
• USE ONLY A NO. 2 PENCIL  
• MAKE HEAVY PENCIL MARKS THAT FILL THE OVALS

CORRECT MARK  
○ ● ○

INCORRECT MARKS  
⊗ ⊕ ⊖ ⊗

SERVICED BY  
○ ARMY  
● NAVY  
○ MARINE CORPS  
○ DEFENSE LOGISTICS AGENCY

U.I.C. CODE  
56473

REPORT DATE  
MONTH DAY YEAR  
06 21 90

TIME REQUIRED  
60

RESUBMITTAL NUMBER  
○ FILL IN FOR RESUBMITTAL FORM  
THEN PUT THE RESUBMITTAL NUMBER IN THE BOXES PROVIDED AND FILL IN THE APPROPRIATE OVALS

DO NOT MARK IN THIS AREA

PEST NAME  
○ All Pests (survey)  
○ Ants  
○ Cockroaches  
○ Stored Product Pests  
○ Pillbugs & Sowbugs  
○ Spiders  
○ Silverfish  
○ Fleas  
○ House & Fifth Flies  
○ Filter & Drain Flies  
○ Centipedes & Millipedes  
○ Scorpions  
○ Crickets  
○ Earwigs  
○ Wasps, Bees & Hornets  
○ Mites  
○ Lice  
○ Carpenter Ants  
○ Drywood Termites  
○ Subterranean Termites  
○ Wood Boring Beetles  
○ Decay Fungi  
○ Birds  
○ Bats  
○ Squirrels  
○ Cats  
○ Mice  
○ Rats  
○ Other Pests (add name)

OPERATION  
○ Pest Surveillance  
○ Service Surveillance Traps  
○ Manual Pesticide Application  
○ Fog, ULV, or Space Treatment  
○ Power Pesticide Application  
○ Pest Exclusion  
○ Service Traps  
○ Service Bait Stations  
○ Fumigation  
○ Soil Pretreatment—Termites  
○ Soil Post-Construction Treatment—Termites  
○ Trench Treatment—Termites  
○ Void Treatment—Termites  
○ Subslab Injection—Termites  
○ Self-Help Operations  
○ Other Control Operations  
● Program Administration  
○ Training  
○ Maintenance  
○ OAE Inspection

SITE DESCRIPTION  
All Indoor Sites (survey)  
All Structures (survey)  
All Wood Structures (survey)  
Food Handling Establishments  
Food Storage Warehouses  
Family Housing (Occupied)  
Family Housing (Vacant)  
Office/Enlisted Quarters  
Office/Administration Areas  
Hospital/Clinic (Health Care)  
Hospital/Clinic (Non-Health Care)  
Industrial Facilities  
Hangars  
Greenhouses & Nurseries  
Vessels, Barges, Aircraft, & Sea/Land Vans  
BLDG. NO.

TOTAL UNITS TREATED

UNITS  
SF  
CF  
LF  
Bait Stations

PROCESSING COPY

CONTROL AGENT  
○ Acephate (Orthene)  
○ Aldrin  
○ Amdro (Combait)  
○ Anticoagulants  
○ Attractants  
○ Avitrol  
○ Bendiocarb (Ficam)  
○ Boric Acid  
○ Brodifacoum (Talon)  
○ Bromadiolone (Mak)  
○ Calcium Cyanide  
○ Carbaryl  
○ Chlordane  
○ Chlorpyrifos (Dursban)  
○ Diazinon  
○ Dichlorvos (Vapona)  
○ d-Phenothrin  
○ Dione  
○ Dursban (Chlorpyrifos)  
○ Fenitrothion (Baytex)  
○ Glue Boards  
○ Hydrogen Phosphide (Phosphine)  
○ Lindane  
○ Malathion  
○ Menthyl Bromide  
○ Naled (Dibrom)  
○ PBD & Naphthalene  
○ Permethrin  
○ Propoxur (Baygon)  
○ Pyrethrum  
○ Repellents  
○ Ronnel (Korlan)  
○ Roost Repellents  
○ Silica Aerogels  
○ Sulfuryl Fluoride  
○ Zinc Phosphide  
○ Other Pesticides (add name)

FORMULATION  
○ Emulsion  
○ Solution  
○ Suspension  
○ Aerosol  
○ Dust  
○ Bait  
○ Solid  
○ Fumigant  
○ Liquid  
○ Fumigant  
○ Other Formulation

PESTICIDE AMOUNT UNIT FINAL CONCENTRATION

PESTICIDE EPA REG. NO.

CERTIFICATION  
NAVAL STATION  
101 Bennett Rd.  
Johns Island  
Charleston  
SC 02341  
Sharon Marks  
NJ-121-56-0289

Enclosure (1)  
Appendix C

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G. Site Description. Select the site of the operation. Your choices are listed on the form (Figures 1 and 2). If the operation performed was "Pest Surveillance," you may use any site listed. Be sure to write in the specific site designation as illustrated in Figure 1. You may use the back of the yellow copy to draw a sketch of the site and to identify exactly where treatment was made.

H. Site Unit. Select the appropriate measurement unit to describe the site involved in the operation. Note that not every unit can be used with every operation. Just as in writing where the parts of a sentence must agree, so must the terms used in the pest management reports. Use Table 1 to find acceptable combinations of report terms.

TABLE 1. INDOOR OPERATIONS

This table lists acceptable combinations for recording indoor pest management operations, units, and sites.

<u>Indoor Operations</u>	<u>Units</u>	<u>Sites</u>
Pest Surveillance . . . . .	(leave blank, no unit needed)	(any site listed)
Service Surveillance Traps . . . . . (or Glue Boards)	Traps . . . . .	(any site listed except All Indoor Sites All Structures All Wood Structures)
Manual Pesticide Application . . . . . or Power Pesticide Application	Square Feet . . . . . Linear Feet	(any site listed except All Indoor Sites All Structures & All Wood Structures)
Fog, Ultra Low Volume or . . . . . Space Treatment	Cubic Feet . . . . .	(any site listed except All Indoor Sites All Structures & All Wood Structures & Vessels, Barges, Aircraft, Sea/Land Vans & Railroad Cars Each . . . . . Vessels, Barges, Aircraft, Sea/Land Vans, & Railroad Cars

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TABLE 1 (continued)

<u>Indoor Operations</u>	<u>Units</u>	<u>Sites</u>
Fumigation . . . . .	Cubic Feet . . . . . or Cubic Feet, Each	(any site listed) Vessels, Barges, Aircraft, Sea/Land Vans, & Railroad Cars
Pest Exclusion/Removal . . .	Each . . . . .	(any site listed)
Service Traps/Glue Boards . .	Traps . . . . .	(any site listed)
Service Bait Stations . . . . (baiting or checking)	Bait . . . . . Stations	(any site listed)
Pretreatment . . . . . (termite prevention)	Square Feet or Linear Feet . . .	All Structures
Post-construction Treatment, Trench Treatment, Void Treat- ment, & Subslab Injection . .	Square Feet or Linear Feet . . .	(any site listed)
Self-Help Pest Control . . . (report coordination time only)	Each (office . . . or unit serviced)	(any site listed except All Indoor Sites All Structures & All Wood Structures)
Other Control Operations . .	Square Feet, . . . Linear Feet, Cubic Feet or Each	(any site listed)
QAE Inspection . . . . . (pest name optional)	(no unit . . . . . needed)	(no site needed)

\* \* \* \* \*

I. Total Units Treated. Fill in the number of units in the spaces at the top of the field, then mark the bubble below each number.

J. Control Agent. Select the appropriate control agent if one was used in the operation and mark the adjacent bubble. Select only one. If a tank mix was used in a pesticide application, you must fill out a separate form for each pesticide in the tank mix and divide the time reported equally between the pesticides used in the mix. If the name of the control agent you want is not listed, select "Other pesticide" and then write in the name of the control agent in the space provided.

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K. Pesticide Formulation. If a pesticide was used in the operation, information is needed about that pesticide. Select the appropriate formulation and unit combination as follows: "dusts," "solid fumigants," "liquid fumigants," and "baits" must be used with "pounds" or "ounces." Liquids such as "emulsions," "solutions," "suspensions," and "aerosols" must be reported with "gallons" or "fluid ounces." "Other formulations" may be reported with any unit of measure. One other unit, "Each" is provided to report the pesticides in bait stations (only) where the amount of pesticide is very small; i.e., with Combat<sup>R</sup> bait stations where the amount of hydramethylnon insecticide is much less than an ounce. See also the quick reference guide on the inside back cover of this instruction.

L. Pesticide Amount Units. Select the appropriate unit listed on the form (Figures 1 and 2).

M. Pesticide Amount. Write in the amount of the finished or formulated material in the spaces at the top of the field. Then mark the bubble below each space under the digit you entered. Note that the field has a decimal so that you can report as little as one tenth (0.1) of a unit.

N. Final Concentration. Write in the percent concentration of the active ingredient of the pesticide in the spaces provided at the top of the field and then mark the bubble below each number. Note that the field contains a decimal so that you can report as little as one one-thousandth (0.001) of a percent. The strength of anticoagulant rodenticides, for example, is often as little as 0.025 percent.

O. EPA Registration Number. When a pesticide is reported, mark the bubble provided and enter the EPA registration number of the pesticide product. For installations in foreign countries only, you may enter a host government registration number, if available. Do not mark the bubble if a registration number is not reported.

P. Certification. Enter the information requested in the spaces provided in this field. An address stamp may be used. The signature field must bear the signature of the certified applicator who performed the operation, or the signature of the certified supervisor. Their certification number must be entered on the line below. When a certification number is entered, be sure to mark the bubble on the same line. Even if the applicator is not certified, he or she must sign the form and "none" should be entered on the certification line.

Q. Resubmittal. This field is used to resubmit corrected records. If a record is returned to you for correction, complete a new record sheet with the corrected information. Then mark the bubble in the resubmittal field, enter the serial number of the original sheet in the space provided and mark one bubble below each number. Resubmittal is only used to correct records that

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have passed all edits and are in the data base. Do not use resubmittal for forms that have not passed through EFD or machine edit.

### PART III REPORTING OUTDOOR PEST MANAGEMENT OPERATIONS

1. Use NAVFAC Form 6250/3 to record outdoor pest management operations. Figure 3 illustrates the form for recording outdoor control operations and related pest management functions. Use one green form for each pest management operation. Simply use a No. 2 pencil to mark the bubble next to your choice of entry in each field on the form. After you have filled out a record discard the carbon sheet. At the end of each day file the bottom (or yellow) copy at the pest control facility, since it is the daily legal record, as required by federal law for all pesticide applications. The yellow copy is also a maintenance record. Use the back of the yellow copy to record any additional details about the operation or site condition, and to show where treatment was applied, if necessary. Save the top copies of the records until the end of each month, then mail them to the EFD PMC.

2. To fill in the form, follow these instructions for each data entry field on the form. Figure 3 illustrates a report of a weed control operation for mixed grasses and weeds in the material storage yard using Bromacil 80 percent wettable powder, a herbicide.

A. Serviced By. Mark the bubble adjacent to appropriate service (Navy or Marine Corps). In the lower part of the same field, mark the choice telling how the work was done.

B. UIC Code. Write in the unit identification code for your installation in the five spaces at the top of the field, then mark the corresponding bubble below each number. If your UIC ends in a letter, do not fill in the bubble below the handwritten letter.

C. Report Date. Write in the date of the operation in the spaces at the top of the field, then mark the bubble below each number. Enter first the month, then the day and year.

D. Time. Write in the time in hours required for the operation, including the time for survey, preparation, performance or craft time, delay time, cleanup, and travel. If you are reporting a combined operation where more than one pesticide or control operation was done on the same job site, you must report them separately and divide the time on the reports accordingly. If two or more people work on the same job, add their time together. If you are reporting an integrated operation where more than one pesticide or control operation was done on the same job site, you must divide the time accordingly on the reports. Note that you can report tenths of hours. For example, six minutes is 0.1 hours, 12 minutes is 0.2 hours, and so

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on. A table for time conversion is printed on the last page of this instruction and may be removed for field use. Reporting time for contract services is optional. Zero-fill spaces to the right.

E. Pest. Select the target pest. Select only one pest even if you plan to control more than one. If the name of the pest you want is not listed, mark the bubble next to the last choice, "Other pests" and then write in the name of pest in the space provided.

F. Operation. Select the operation performed. Your choices are:

Pest Surveillance	Ditching	Clearing Vegetation
Service Surveillance Traps	Service Traps	Service Bait Stations
Manual Pesticide Application	Biological Control	Bird Control
Fog, ULV, or Space Treatment	Mound Treatment	Burrow Treatment
Power Pesticide Application	Soil Fumigation	Fumigation Outdoors
Aerial Pesticide Application	Burrow Fumigation	Other Control Operation

(1) Use "Pest Surveillance" to report survey efforts to determine if there is a problem present. This operation may also be used to report follow-up surveys to determine if a treatment was successful. Report any pesticide used in the surveillance effort. You may use the generic term, "All pests," if surveillance involves several pests.

(2) Use "QAE Inspection" to report the time required to determine pest control contract performance and contract management efforts by Navy personnel. Reporting the target pest is optional but do not report the site. However, if a pesticide is used in the course of the evaluation, report it and report a site. Do not report a site unless a pesticide was used.

G. Site Description. Select the site of the operation. Your choices are listed on the form (Figure 3). If the operation performed was "Pest Surveillance," you may use "All Outdoor Sites." Be sure to write in the specific site designation as illustrated in Figure 3. You may use the back of the yellow copy to draw a sketch of the site and identify exactly where treatment was made. Use the back also to note weather conditions if they are required by state regulations, such as air temperature, wind speed and direction, precipitation, and soil conditions.

H. Site Units. Select the appropriate measurement unit to describe the site involved in the operation. Note that not every unit can be used with every operation. Just as in writing where the parts of a sentence must agree, so must the terms used in the pest management reports. Use Table 2 to find acceptable combinations of report terms.

I. Total Units Treated. Fill in the number of units in the six spaces at the top of the field, then mark one bubble below each number.

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PEST MANAGEMENT DATA SYSTEM OUTDOOR OPERATIONS				RESUBMITTAL NUMBER																																																																																																																																																																																																							
<b>MARKING INSTRUCTIONS</b> • USE ONLY A NO. 2 PENCIL • MAKE HEAVY PENCIL MARKS THAT FILL THE OVALS  <b>CORRECT MARK</b> <input type="radio"/> <b>INCORRECT MARKS</b> <input type="radio"/> <input type="radio"/>	<b>SERVICED BY</b> <input type="radio"/> ARMY <input checked="" type="radio"/> NAVY <input type="radio"/> MARINE CORPS <input type="radio"/> DEFENSE LOGISTICS AGENCY  <input type="radio"/> In-house <input type="radio"/> Support Agreement <input type="radio"/> Contract	<b>U.I.C. CODE</b> <table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> </table>	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	<b>REPORT DATE</b> MONTH DAY YEAR 06 20 90	<b>TIME REQUIRED</b> 24.0	<b>RESUBMITTAL NUMBER</b> • FILL IN FOR RESUBMITTAL FORM THEN PUT THE RESUBMITTAL NUMBER IN THE BOXES PROVIDED AND FILL IN THE APPROPRIATE OVALS.																																																																																																		
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<b>PEST NAME</b> <input type="radio"/> All Pests (survey) <input type="radio"/> Algae & Aquatic Weeds <input type="radio"/> Broad-leaved Weeds <input checked="" type="radio"/> Mixed Grasses & Weeds <input type="radio"/> Grasses <input type="radio"/> Brush <input type="radio"/> Diseases of Ornamentals & Turf <input type="radio"/> Turf Insects <input type="radio"/> Mole Crickets <input type="radio"/> Nematodes <input type="radio"/> Moles & Gophers  <input type="radio"/> Scale Insects <input type="radio"/> Aphids <input type="radio"/> Japanese Beetles <input type="radio"/> Gypsy Moths <input type="radio"/> Ants <input type="radio"/> Centipedes <input type="radio"/> Crickets <input type="radio"/> Earwigs <input type="radio"/> Scorpions <input type="radio"/> Spiders <input type="radio"/> Wasps, Bees, & Hornets  <input type="radio"/> Carpenter Ants <input type="radio"/> Filter/Drain Flies <input type="radio"/> House & Fifth Flies <input type="radio"/> Horse & Deer Flies <input type="radio"/> Ticks, Chiggers & Mites <input type="radio"/> Midges, Sand & Black Flies <input type="radio"/> Mosquitoes <input type="radio"/> Fish <input type="radio"/> Birds <input type="radio"/> Ground Squirrels <input type="radio"/> Raccoons  <input type="radio"/> Mice <input type="radio"/> Rats <input type="radio"/> Snakes <input type="radio"/> Snails & Slugs <input type="radio"/> Decay Fungi <input type="radio"/> Other Pest (add name)	<b>OPERATION</b> <input type="radio"/> Pest Surveillance <input type="radio"/> Service Surveillance Traps <input type="radio"/> Manual Pesticide Application <input type="radio"/> Fog, ULV, or Space Treatment <input type="radio"/> Power Pesticide Application <input type="radio"/> Aerial Pesticide Application <input type="radio"/> Service Traps <input type="radio"/> Service Bait Stations <input type="radio"/> Biological Control <input type="radio"/> Ditching <input type="radio"/> Clearing Vegetation <input type="radio"/> Bird Control <input type="radio"/> Mound Treatment <input type="radio"/> Burrow Treatment <input type="radio"/> Burrow Fumigation <input type="radio"/> Soil Fumigation  <input type="radio"/> Fumigation—Outdoors <input type="radio"/> Other Control Operations <input type="radio"/> QAE Inspection	<b>SITE DESCRIPTION</b> <input type="radio"/> All Outdoor Sites (survey) <input type="radio"/> Ornamentals, Turf & Gardens <input type="radio"/> Trees <input type="radio"/> Lawns <input type="radio"/> Golf Course Areas <input type="radio"/> Rights-of-Way <input type="radio"/> Semi-improved Grounds <input type="radio"/> Unimproved Grounds <input type="radio"/> Aquatic Sites <input type="radio"/> Landfills & Refuse Dumps <input type="radio"/> Dumpsters & TSCs <input type="radio"/> Sewers & Storm Drains <input type="radio"/> Material Storage Yards <input type="radio"/> Magazines & Bunkers  <b>AREA NO.</b> MOTOR POOL	<b>TOTAL UNITS TREATED</b> <table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> </table>	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0																																																																																																				
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<b>CONTROL AGENT</b> <input type="radio"/> 1080 (Sodium Monofluorophosphate) <input type="radio"/> 2,4-D <input type="radio"/> Abate <input type="radio"/> Acaphate (Orthane) <input type="radio"/> Allethrin <input type="radio"/> Alkoxid <input type="radio"/> Amdro <input type="radio"/> Amitrole <input type="radio"/> Ammate <input type="radio"/> Anticoagulants <input type="radio"/> Aramite <input type="radio"/> Arsenicals <input type="radio"/> Aspon <input type="radio"/> Atrazine (Aatrex) <input type="radio"/> Avitrol <input type="radio"/> Bacillus thuringiensis (Bt) <input type="radio"/> Baygon (Propoxur) <input type="radio"/> Bendiocarb (Picam) <input type="radio"/> Bensulfide (Betasan) <input type="radio"/> Borates <input type="radio"/> Brodifacoum (Talon) <input type="radio"/> Bromoxil (Hyver) <input type="radio"/> Bromadiolone (Mako) <input type="radio"/> Cadmate <input type="radio"/> Calcium Cyanide <input type="radio"/> Captan <input type="radio"/> Carbaryl (Sevin) <input type="radio"/> Carbamate <input type="radio"/> Caesoon <input type="radio"/> Chlorates <input type="radio"/> Chlorfluorol (CF-125) <input type="radio"/> Aapon <input type="radio"/> Chlorobenzilate <input type="radio"/> Chlorophacinone (Rozol) <input type="radio"/> Avitrol <input type="radio"/> Copper Sulphate <input type="radio"/> Decont <input type="radio"/> Dethifal <input type="radio"/> Delapon <input type="radio"/> Desanit <input type="radio"/> Diazinon <input type="radio"/> Dicamba (Banvel) <input type="radio"/> Dichlorvos (Vapona) <input type="radio"/> Demelin <input type="radio"/> Dioxathion (Delnav) <input type="radio"/> Diquat (Aquacide) <input type="radio"/> Dieldrin <input type="radio"/> Dureon (Karmex) <input type="radio"/> Drono <input type="radio"/> Durban (Chlorpyrifos) <input type="radio"/> Dyrene <input type="radio"/> Emberk <input type="radio"/> Fenac <input type="radio"/> Fenitron (Baytex) <input type="radio"/> Folpet <input type="radio"/> Glue Boards <input type="radio"/> Glyphosate (Round-up) <input type="radio"/> Hydrogen Phosphide (Phosphine) <input type="radio"/> Lindane <input type="radio"/> Malathion <input type="radio"/> Maledic Hydrazide (MH-30) <input type="radio"/> Maneb <input type="radio"/> Measul <input type="radio"/> Metaldelhyde <input type="radio"/> Metasystox-R <input type="radio"/> Methyl Bromide (Bacillus popilliae) <input type="radio"/> Milky Spore Dust <input type="radio"/> Monuron <input type="radio"/> Monuron-TCA (Urox) <input type="radio"/> Mosquito Fish <input type="radio"/> Naled (Dibrom) <input type="radio"/> Nemaicur <input type="radio"/> Oils (all types) <input type="radio"/> Parquat <input type="radio"/> Paris Green <input type="radio"/> Permethrin <input type="radio"/> Picloram (Tordon) <input type="radio"/> Prometon (Fenrolol) <input type="radio"/> Pyrethrum <input type="radio"/> Resmethrin <input type="radio"/> Ronnel (Korlen) <input type="radio"/> Roost Repellents <input type="radio"/> Silica Aerogels <input type="radio"/> Semaize (Princep) <input type="radio"/> Strychnine <input type="radio"/> Sulfuryl Fluoride (Vikane) <input type="radio"/> Thiram <input type="radio"/> Vapam (Metham-sodium) <input type="radio"/> Velpar <input type="radio"/> Zinc Phosphide <input type="radio"/> Zineb <input type="radio"/> o-Phenothrin <input type="radio"/> Other Pesticide (add name)	<b>FORMULATION</b> <input type="radio"/> Solution <input type="radio"/> Suspension <input type="radio"/> Aerosol <input type="radio"/> Dust <input type="radio"/> Bait <input type="radio"/> Solid <input type="radio"/> Fumigant <input type="radio"/> Liquid <input type="radio"/> Fumigant <input type="radio"/> Other Formulation	<b>FINAL CONCENTRATION</b> <table border="1"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr> 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J. Control Agent. Select the appropriate control agent if one was used in the operation and mark in the adjacent bubble. Select only one. If a tank mix was used in a pesticide application, you must fill out a separate form for each pesticide in the tank mix and divide the time reported equally between the pesticides used in the mix. If the name of the control agent you want is not listed, select "Other pesticide" and then write in the name of the control agent in the space provided.

K. Pesticide Formulation. If a pesticide was used in the operation, information is needed about that pesticide. Select the appropriate formulation and unit combination as follows: "Dusts," "solid fumigants," "liquid fumigants," and "baits" must be used with "pounds" or "ounces." Liquids such as "emulsions," "solutions," "suspensions," and "aerosols" must be reported with "gallons" or "fluid ounces." "Other formulations" may be reported with any unit of measure except "Each." See also the quick reference guide on the inside back cover of this instruction. Figure 3 illustrates reporting weed control with 80g Bromacil wettable powder.

L. Pesticide Amount Units. Select the appropriate unit and mark the adjacent bubble. Choices are listed on the form (Figure 3).

M. Pesticide Amount. Fill in the amount of the finished or formulated material in the six spaces at the top of the field, then mark the bubble below each number. Note that the field has a decimal so that you can report as little as one tenth (0.1) of a unit.

N. Final Concentration. Fill in the concentration of the active ingredient of the pesticide in percent in the six spaces provided at the top of the field then mark the bubble below each number. Note that the field contains a decimal so that you can report as little as one-thousandth (0.001) of a percent. The strength of anticoagulant rodenticides, for example, is often as little as 0.025 percent. It is an optional field. You may report the same operation by using the field described below in item "O," the "rate per unit area," instead.

O. Rate per Unit Area. Fill in the rate per unit area with the pesticide rate in pounds in the left side of this field and the concentration of the undiluted pesticide product in percent in the right side of the field. Note that there is a decimal point in each part of the field so that you can report as little as one-tenth of a pound and one-tenth of a percent. Figure 3 shows an application rate of 20 pounds of 80 percent Bromacil per acre. Note that the final concentration field is not used in this record since only one format is needed.

P. EPA Registration Number. When a pesticide is reported, mark the bubble provided and enter the EPA registration number of the pesticide product. For installations in foreign countries only, you may enter a host government registration number, if available. In all other cases, mark the

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TABLE 2. OUTDOOR OPERATIONS

This table lists acceptable combinations for recording outdoor pest management operations, units, and sites.

<u>Outdoor Operations</u>	<u>Units</u>	<u>Sites</u>
Pest Surveillance . . . . .	(leave blank . no unit needed)	All Outdoor Sites
Service Surveillance Traps . . . (or Glue Boards)	Traps . . . . .	(any site listed)
Manual Pesticide Application . .	Acres, . . . . . Square Feet, or Linear Feet	(any site listed except All Outdoor Sites)
Power Pesticide Application . . .	Each . . . . .	Dumpsters, TGCs & Trees
	Each or Linear Feet	Sewers & Storm Drains
Fogging or Ultra-Low Volume . . . Application	Acres . . . . .	(any outdoor site except Dumpsters & TGCs, and Trees)
	Each . . . . .	UGS
Aerial Pesticide Application . .	Acres . . . . .	All Outdoor Sites
Service Traps/Glue Boards . . . .	Traps . . . . .	(any site except All Outdoor Sites)
Burrow Treatment . . . . . or Burrow Fumigation	Each or Acres . .	(any outdoor sites)
Soil Fumigation . . . . . (top dressing)	Acres, Square or Cubic Feet	Ornamentals, Turf & Gardens, Lawns & Golf Course Areas, only
Fumigation, Outdoor . . . . . (i.e., stack fumigation or commodity fumigation)	Cubic Feet . . .	Semi-improved Grounds Unimproved Grounds Material Storage Yards
Mound Treatment . . . . .	Each, Acres . . .	(any site listed)

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TABLE 2. (continued)

Service Bait Stations . . . . .	Bait Station .	(any site listed except All Outdoor Sites)
(Baiting or checking)		
<u>Outdoor Operations</u>	<u>Units</u>	<u>Sites</u>
Biological Control . . . . .	AC, SF, Each .	(any site listed)
	Traps, Bait Stations	
Ditching or Clearing . . . . .	AC, LF, or SF .	Rights-of-Way Semi-improved Grounds Unimproved Grounds Aquatic Sites
Bird Control . . . . .	Each (numbers .	(any site listed)
	of buildings or areas)	
Other Control Operations . . . . .	SF, LF, AC . .	(any site listed)
	or Each	
QAE Inspection (no unit) . . . . .	(any site listed)	
(pest name optional)	needed)	

\*\*\*\*\*

bubble and leave the entry space blank. Do not mark the bubble if a registration number is not reported.

Q. Certification. Enter the information requested in the spaces provided in this field. A rubber address stamp may be used. The signature field must bear the signature of the certified applicator who performed the operation, or the signature of the certified supervisor. Their certification number must be entered on the line below. When a certification number is entered, be sure to mark the bubble on the same line. Even if the applicator is not certified, he or she must sign the form and enter "none" on the certification line.

R. Resubmittal. This field is only used to resubmit corrected records if the original record sheet cannot be corrected itself. If a record is returned to you for correction, complete a new record sheet with the corrected information. Then mark the bubble in the resubmittal field, enter the serial number of the original sheet in the six spaces provided, and mark one bubble below each number. Resubmittal is only used to correct records that have passed all edits and are in the data base. Do not use resubmittal for forms that have not passed through EFD or machine edit.

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PEST MANAGEMENT PROGRAMS FOR  
MEAL, READY-TO-EAT RATIONS

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## Foreword

This implements guidance for the protection of Meal, Ready-to-Eat (MRE) Combat Rations owned or under the custody of Navy activities consistent with the references listed in Attachment (1). MRE rations are packed in 10 mil polyethylene pouches that are very susceptible to insect and rodent attack and damage. Until different packaging is used for the rations, strict pest prevention measures must be taken ashore and afloat to protect them. Furthermore, the rations are included in Landing Force Operational Reserve Materials (LFORM) which, under the present situation, are stored for extended periods of time on board ships below deck and usually in areas inaccessible for thorough inspection. Since temperature and humidity conditions in shipboard storage are highly conducive to development of stored product pests, action must be taken to prevent infestation prior to and during storage aboard ship.

Specific pest control measures are required for storage of the MRE rations. Parts I and II provide these measures for the two broad storage situations: ashore and aboard ship.

Addressees shall implement enclosures (1) and (2) at all shore activities and ships under their command that store, or will store, the MRE rations to prevent extensive losses caused by pest infestation and damage.

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References for Protection of Meal, Ready-To-Eat Rations  
On Board Ship

- (a) COMNAVSURFPACINST 4080.1/FMFPAC ORDER 4080.2 (NOTAL)
- (b) COMNAVSURFLANTINST 4080.1B/FMFLANT ORDER 4000.10B (NOTAL)
- (c) CMC Msg R091434Z MAR 82 (NOTAL)
- (d) NAVSUP PUB 485
- (e) AR 30-7/DLAR 4145.36 of 1 Mar 79 (NOTAL)

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PART I INSTALLATION PROGRAMS

1. Control Concept. Protection of MRE rations shall be established through integrated pest management measures which involve a combination of chemical and nonchemical prevention and control strategies. The concept offers a far more effective program than the utilization of any one technique, such as pesticide application.

The basic integrated pest management program for MREs shall include:

A. Initial inspection of goods and premises, identification of problem areas, and pests present.

B. Application of pest management techniques:

(1) Structural design and pest exclusion.

(2) Sanitation/housekeeping.

(3) Stock handling practices.

(4) Nonchemical control/exclusion methods.

(5) Chemical control methods.

C. Ongoing inspections to continually evaluate the program and correct problem areas.

D. Portions of the program may not be applicable to cold storage facilities.

The success of any integrated pest management program is dependent upon communication and cooperation between warehouse management, medical, veterinary and entomological personnel, and military or civilian pest control operators. The spheres of responsibility for each element of the program overlap, which can jeopardize the program in the event of a breakdown in any element.

2. Initial Inspection. Under the provisions of the modified appendix "S" of DLA Manual 4155.5 (NOTAL) and Navy regulations/instructions, when instituting an integrated pest management program, a joint inspection (pest management consultant and warehouse management personnel) is made to initially determine the areas in which the premises and current practices need improvement. For that reason, inspecting personnel must understand the optimum conditions and techniques for effective pest control and pinpoint deficient areas utilizing the techniques discussed in Section III of DLAM 4155.5 (NOTAL). It is recommended that a meeting be held following the initial inspection, at which time all involved personnel can be acquainted with the results, and goals can

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be set for correction of problems and implementation of the integrated pest management program.

3. Structural Design/Pest Exclusion. Proper structural design and other techniques can prevent insects, rodents and birds from entering warehouses and storerooms, and this precludes additional time and resources to remove them. To prevent entry by birds and rodents, repairs must be initiated in subsistence warehouses to replace all broken windows, cover all windows that are opened in warmer months, repair all holes in walls including those around pipes, and cover all floor drains with screen wire (16 mesh/inch). Ensure that all doors leading to the outside of the building close in a manner such that there is a gap of no more than 1/4" between the floor and the bottom of the door.

A. Outside Grounds

(1) Heavy weed growth and debris near the storage facility shall be eliminated, as these items provide a breeding site and cover for insects and rodents, and make locating and treating rodent burrows more difficult.

(2) Refuse receptacles must be emptied daily and trash on the ground picked up; this reduces rodent and insect harborage sites and food.

(3) Surplus pallets shall be stacked well away from the warehouse building, as they often provide harborage for rodents and insects.

(4) Yellow or sodium vapor exterior lighting shall be used to reduce insect attraction.

(5) Garbage areas shall be well organized and free of litter to prevent rodent harborage and enable observation during rodent surveys.

B. Buildings

(1) Any holes existing in or under walls shall be repaired, and all cracks around door jams or at the wall/ground junction shall be sealed with concrete, or other suitable material.

(2) Doors shall be tight-fitting, and kept closed when not in actual use. If railroad tracks run into the warehouse, a block or plate shall be attached to the door to fill the gap next to the track itself.

(3) Plumbing and electrical lines shall be sealed where they enter the building.

(4) Operable windows and air ducts shall be covered with 16-mesh screening.

C. Warehouse Interior

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(1) If the loading dock is not of solid construction, the area beneath shall be open and accessible and kept clean. The dock itself shall be free of debris, excess pallets, and packing materials, which can provide pest harborages.

(2) Incoming products shall be inspected to ensure they are pest free when received. Refuse receipt of any infested products. See Section III of DLAM 4155.5.

(3) Where possible, a minimum of 60 cm (24") perimeter clearance shall be maintained between walls and shelves or pallets.

(4) Packing material in repack areas shall be stored off the floor, as shall tools and parts in mechanical and recharging areas.

(5) Lockers shall be provided for employee use to store personal items and lunches.

4. Sanitation/Housekeeping. Proper sanitation and housekeeping efforts will substantially reduce pest food sources and harborage, as well as facilitate effective chemical and nonchemical control measures. Good sanitation practices include:

A. Prompt cleanup of commodity spillage.

B. Repair or removal and disposal of broken food containers and packages, especially in the salvage and recoupment areas. Thoroughly cleaning metal or plastic refuse containers located in the recoupment area weekly, or as frequently as necessary with hot water or steam.

C. Use of snug fitting covers or lids for refuse containers is required. Additionally, refuse containers, vacuum cleaner bags, or receptacles shall be emptied daily. Containers must be cleaned weekly.

D. Sweeping floors regularly, with special attention to the removal of debris which accumulates around posts, shelf legs, and pillars, is required. Use an industrial vacuum sweeper to thoroughly clean warehouses and storerooms containing any subsistence assets once a week. That includes the area under pallets, infested commodities, and government-owned vans and railcars to be loaded with MREs.

E. Immediately cleanup rodent droppings when discovered; also inspect commodity, packaging, pallets, and floors for contamination by urine or other filth.

F. Maintain pallets and keep them clean and free of debris.

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G. Empty food tins or half-eaten containers of food behind or underneath pallets, and in other out of the way places, shall be removed. Such items are powerful pest attractants and must be removed immediately whenever discovered. Warehouse management shall prohibit eating, except in designated areas.

H. Thoroughly clean all restrooms and "break" or lunch areas.

5. Stock Handling Practices. Certain stock handling practices have been effective to reduce the potential food supply and harborages for pests:

A. Storage of MRE rations shall be separate from commissary and fleet issue food items, except when stored under refrigeration.

B. Where practical, pallets shall be raised off the floor on shelving 12 inches above the floor to facilitate cleaning and efficient inspection.

C. Items shall be placed on pallets as compactly as possible to eliminate rodent hiding places.

D. Proper stock rotation is critical. The older a product, the more likely it is to be infested. Rotation shall be based on the date of pack of the item, rather than the date received in the warehouse or storeroom, unless food inspection personnel indicate otherwise. Management must be aware of the turnover time on various items in order to reduce the likelihood of overstocking, and consequent overaging of products.

E. In locations where MRE rations are co-located with commissary or troop issue items, conduct a thorough inspection of the most highly infestible commodities (dry pet food) to determine whether or not an infestation exists. Conduct the same inspection on all other infestible commodities shortly thereafter. The following items are subject to infestations:

(1) Dry Pet Food	(4) Pasta	(7) Cookies	(10) Cereals
(2) Flour and Mixes	(5) Nuts	(8) Cornmeal	(11) Spices
(3) Candy	(6) Grits	(9) Beans	

F. Food items, other than MREs, found to be infested with insects should be immediately fumigated with an approved fumigant. If that cannot be done within 24 hours, the infested commodity shall be covered with plastic and the plastic sealed to the floor with tape. It will serve as a temporary means of minimizing contamination of other products. If all of the above are impossible, place the infested commodity in refrigerated storage. If MRE rations are infested with insects, fumigation is permitted to halt the spread of insects to clean products. Local medical or veterinary representatives must then determine through ration breakdown which components can be salvaged.

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G. Ensure that supervisors encourage caution among forklift operators. Most spillage and commodity damage is caused by careless operations. Special care must be taken with soft-packaged items, such as flour and rice.

6. Pest Exclusion Methods. These methods are designed and intended to exclude pests from storage environments to prevent establishment:

A. Plastic or wire screening attached or suspended beneath warehouse structural framing has been shown to be an effective means of excluding birds from access to nesting sites or perches.

B. Screening (16 mesh) over windows through outside walls is required for operable windows.

C. Large doorways leading to outside access shall be tight fitting and have no gaps larger than 1/4 inch on any edge when door is closed.

D. Magnetic and sonic devices are neither effective nor authorized for rodent or bird control.

7. Nonchemical Control Methods. These methods are designed to control pest infestations by catching, killing, or excluding the pest without the use of pesticides. Warehouse design must be considered from the standpoint of control and exclusion.

A. Repeating traps and snap traps are used for rodent control around the inside perimeter of the warehouse at 10 foot intervals, and within food stacks in high susceptibility areas such as pet food, rice, and flour storage.

B. Glue boards may be used for rodent control, and should be placed in the same manner as traps on the natural rodent runs.

C. Eliminate unnecessary water sources readily available to rodents to force them to use liquid bait stations.

D. Repellent glues may be used to keep birds off roosting points, if they cannot be entirely excluded.

E. New Jersey style light traps, while not effective as the only type of control measure, do provide good surveillance of insect populations.

8. Chemical Control Methods. Chemical pesticides are used to prevent or control insect, rodent, and bird infestations.

A. Ensure that all pesticide applicators are trained, certified, or appropriately licensed to apply pesticides.

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B. Purchase and use ULV fogging machines weekly with an approved insecticide as a warehouse space treatment during non-duty hours. Specific recommendations shall be obtained from the responsible pest management consultant.

C. Apply crack and crevice residual pesticides (approved for food processing establishments) two times per month in dry storage warehouses or similar facilities. Residual insecticides shall not be applied in cool or wet cave storage facilities unless specifically advised by a pest management consultant.

D. At the discretion of a pest management consultant, dry rodenticide bait may be used in storage environments in unusual situations; however, as a standard practice only liquid rodent bait should be used. Liquid rodent bait stations are placed along the inside warehouse perimeter, as well as at points of evident need, and should be alternated with traps at intervals of 50 feet or closer. Stations shall be placed only in locations where they will be accessible at all times for inspection and servicing, and protected from careless operations. Stations shall be checked for rodent activity, and old bait material completely replaced with new, at regular monthly intervals. Bait stations must be used outside all storage facilities, as well as inside wet caves, at intervals of 50 feet or closer. Bait stations placed outside shall be tamperproof. Baits must be protected from mechanical damage and be readily accessible to the rodent population.

E. Rodent tracking stations should be used, and are especially effective for rapid reduction of high rodent populations.

F. Ensure that railcars and truck vans are clean, and without holes, both before they are loaded and shipped, and upon receipt.

G. Ensure that infestible commodities received between 1 May and 31 October have been fumigated following MIL-STD-1486B (NOTAL).

H. Purchase (if not on hand) all equipment and material necessary to perform fumigation of infested commodities and rail cars.

I. Routine fumigation of MRE rations is prohibited, except as noted in paragraph 5f.

J. Fumigate any product in which there is evidence (direct or indirect) of insect infestation to eliminate active infestations and prevent the spread of insects to MREs. Fumigation should be accomplished in place, if possible, and as promptly as possible.

K. Fumigate as a standard practice all dry, bagged pet food upon receipt, if the pet food will be co-located with MRE rations.

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9. Inspection/Survey Techniques

A. Conduct thorough veterinary/entomological/pest control commodity inspections for possible infestations, especially receipt inspections.

B. Conduct biweekly Veterinary/Preventive Medicine/Pest Management inspections of sanitary conditions both inside and outside warehouses.

C. Effective inspection techniques are the keys to getting the integrated pest management program properly started, and are essential in monitoring and maintaining the program's efficiency. To conduct a proper inspection, the inspector needs several items, such as a flashlight, pocket knife for opening boxes, clipboard, paper, pen, and tape for resealing boxes. In addition, the inspector may want to carry chalk for marking infested pallets and a magnifying hand lens to aid in initial insect identification. Also, a portable black-light is useful in determining rodent contamination, as rodent urine fluoresces under ultra violet light.

D. During the receipt inspections of foods, the inspector shall note the condition of boxes and pallets, as well as looking for actual infestations in the food product itself. Over aged items and products in severely deteriorated or damaged containers should be viewed with suspicion; where possible, such items shall be returned to the shipper. Infested products shall not be placed in the food warehouse.

E. During the initial preprogram inspection, as well as during follow-up inspections, the inspector should note general sanitation levels, structural discrepancies, and signs of rodent or insect infestations. Inspection results shall be communicated to the activity commander and warehouse management, as well as any other involved agency such as Public Works or Maintenance. That is necessary so that deficiencies may be corrected promptly to ensure an effective program.

F. Insect identifications must be supported by confirmation from a pest management consultant, the supporting medical laboratory, or the Navy Environmental Health Center.

G. Inspectors will find the following guidelines helpful in spotting insect and rodent infestations:

(1) Rodents

(a) Look for droppings, urine stains, rub marks, gnawing and shredded nesting materials on, in, and under pelletized goods. Rodents may infest the interior of pelletized goods, especially if held for long periods in the warehouse before issue.

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(b) Do not confine inspection to pallets of edible foods; rodents will nest with equal facility in pallets of canned goods or paper products.

(c) In heavy infestations, the odor of rodents provides a valuable clue to their location.

(2) Insects

(a) Note the number and type of dead insects on floors, as well as any live insects crawling on or flying around commodities.

(b) If New Jersey style or similar light traps are used, their contents must be checked weekly as to the number and species of insects, and identified by the responsible pest management consultant.

(c) Phermone traps may be used at the discretion of the responsible pest management consultant.

(d) Check infestible food products by moving a layer or two of packages off the top of the pallet, looking closely for insects on package surfaces or in cracks and folds between packages. Insects infesting food products will usually be found on the underside of plastic bags, in the bottom of cartons and sacks, or underneath carton or box flaps. The existence of "frass" or silk in or on a product or chewed entry or exit holes are clues to an infestation, even if actual insects are not immediately seen.

PART II SHIPBOARD PROGRAMS

1. Introduction

A. General. The Meal, Ready-to-Eat (MRE) is a combat ration that is lighter, better flavored and has a longer shelf life than the canned Meal, Combat, Individual (MCI) which it replaces. The MRE is packaged in a 10 mil polyethylene bag which is strong and lightweight, but unlike the canned goods of the MCI, they can be penetrated by rodents and certain insects. Under the confined conditions found aboard ship, MREs may be at high risk to infestation by those pests. Because of the critical importance of the MRE in future contingency operations, it is essential that ship commanders ensure these rations are protected through an effective shipboard pest management program.

B. Ships Carrying MREs

(1) The MRE rations are stocked aboard Navy ships when specifically authorized by a fleet commander and the Navy Food Service System Office. For example, an LSD may requisition MREs to feed the ship's landing party during training or field exercises. In that situation, the rations will be found in

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the food service storerooms and will be the responsibility of the supply department.

(2) Navy replenishment and USNS vessels may carry MREs, many of which will be transported in refrigerated spaces. Certain types of amphibious assault ships have been designed to carry large quantities of MREs under a program called Landing Forces Operational Reserve Materials, or LFORM. The very nature of the program renders the MRE particularly vulnerable to invasion by insects and rodents. While all MREs placed aboard ship will require constant vigil, the guidelines that follow are designed with LFORM in mind.

## 2. Landing Force Operational Reserve Materiel (LFORM)

A. Concept of LFORM. LFORM are part of Marine Corps Prepositioned War Reserve Materiel stocks and are maintained aboard selected amphibious warfare ships to provide support for embarked troops in contingencies. Embarked Marines aboard for training operations will not draw stocks from LFORM. The combat cargo officer is responsible for LFORM stocks, not the supply officer.

B. Ship Types Carrying LFORM MREs. MRE rations for a Marine Amphibious Unit (MAU) will be prepositioned and stored in secure spaces aboard each LPH, LHA, LPD and LKA. Designated ships each receive and hold five to seven thousand cases with 12 rations per case.

C. Palletizing of MREs in LFORM. MREs are palletized and banded on standard 40" x 48" wooden pallets. There are 48 cases/pallet.

D. Rotation of MREs in LFORM. Since MREs have a shelf life, references (a) and (b) require them to be rotated on an annual basis. Rotation will return MREs to supply channels for re-issuing and consumption. It is the one year storage requirement that makes the pest management program critical.

## 3. Stacking Requirements

A. Stacking. Reference (c) states that MREs shall be stacked no more than three (3) pallets high in a warehouse due to the danger of crushing the cases at the base of the stack. The effect of continual vibration while underway will hasten the settling or crushing effects on the lower cases of MREs pallets stacked three pallets high. For those ships having overhead clearance which would allow stacking of MREs it is recommended that they be stacked no more than two pallets high. While other LFORM gear may be placed under the MREs, no items shall be placed over the MRE rations. LFORM MREs shall not be stacked over or immediately adjacent to petroleum products (oils, greases, fuels or solvents).

B. Inspections. Marine Corps Service Support Group LFORM loading plans shall allow accessibility to the MRE rations for stored product pest inspections by medical department personnel. In that situation, accessibility means

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sufficient space for an individual to closely inspect a minimum of one side and the top of the MREs as stacked on a pallet.

C. Time/Temperature Guidelines. MREs stored in LFORM blocks can be expected to experience temperature ranges to allow them to last for at least one year. It is believed that the MRE is less vulnerable to high temperature exposure than the old MCI. However, pending further storage tests and surveillance inspection experience with volume-procured MREs, time/temperature guidelines previously established for the MCI by reference (e) shall be followed: two years at 70°F, one year at 88°F, and six months at 106°F. Daily temperature logs are kept on LFORM stowage areas where ordnance is held. Any spaces with MREs must also be monitored for temperature. The combat cargo officer shall consider placing MREs in the coolest sections of the LFORM stowage spaces when designing the load plan.

#### 4. Pest Management Guidelines

A. Initial Inspection and Treatment of LFORM MRE Stowage Spaces. The combat cargo officer must coordinate the initial inspection of storage space with the preventive medicine technician or Medical Department representative (MDR) prior to loading LFORM MRE rations. A meticulously thorough survey for any insect or rodent must be made at the time. Even if no insects or rodents are found, flawless sanitation and housekeeping practices will substantially reduce pest food sources and harborage, as well as facilitate chemical and nonchemical measures for any pest that may be introduced later. A high degree of sanitation is essential in all store rooms to prevent or limit infestations.

(1) Thoroughly clean entire stowage space where MREs are to be placed. Any nearby spaces which hold or have recently held foodstuffs or animal products (boots, blankets, brushes, wool uniforms, etc.) must receive similar attention. Remove debris from the ship after each cleaning.

(2) Once a spotlessly clean stowage area is achieved, residual insecticide sprays can be applied. The medical department representative or station pest control personnel shall use an approved residual insecticide. Residual sprays provide long lasting protection to noninfested stocks and prevent the spread of pests from previously infested stocks. Specific pesticide recommendation, rate, and type of application shall be obtained from the area medical entomologist.

B. Inspection of LFORM MREs Prior to On-Loading. Paragraph 4200 of reference (d) states that stores received from naval activities require only a quantity inspection. It further states that quality inspections are made by the supply activity upon acceptance of the material from the original supplier and will not be duplicated aboard ship. The receiving ship, however, may make inspections to detect any deterioration or breakage that may have occurred since the quality inspection. It is during this inspection that the Medical Department Representative must check closely for signs of insects and rodents.

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Receipt of stores from government activities other than naval activities are to be inspected for both quantity and quality. Due to the absolutely critical importance of the LFORM MRE in future contingency operations, only stocks in good condition and free of defects shall be accepted.

C. Loading of LFORM MREs. Loading can begin once the combat cargo officer has determined the quality and quantity of LFORM MREs, and that stowage spaces are properly prepared. Care must be taken to avoid damaging the rations during loading operations. Damaged cases with exposed foodstuffs must be removed from the pallet and repackaged. Prompt cleanup of spillage is essential. Supervisors must encourage caution and consciousness among forklift and elevator operations to avoid damage to these soft-packaged rations.

D. Routine Inspection Program for MREs Stored Aboard Ship.

(1) Inspection of Ship's Company MREs. In those storerooms where MRE rations are co-located with ship's company food stuffs, the Medical Department should conduct a thorough monthly inspection of several of the most highly infestible commodities (flour, mixes, cornmeal, grits, pasta, cookies, cereals, spices, beans, nuts, and candy). Infestations detected as a result of those inspections shall be handled per reference (f).

(2) LFORM MRE Inspection Program Requirements. Due to the absolutely critical nature of these rations, intense surveillance of the LFORM MREs shall be conducted. Any insect life form found in these stowage spaces must initially be considered as a threat to the MRE. The combat cargo officer should coordinate with the medical officer to have designated medical department representatives conduct weekly inspections for stored product pests. The LFORM load plan must allow for reasonable access, otherwise adequate inspections cannot be performed.

(3) Surveillance Equipment. To conduct an adequate and thorough inspection, the inspector will need to carry several items, such as a flashlight, clipboard, paper, pen, alcohol vials for preserving insect specimens, magnifying hand lens to aid in initial pest identification, and optionally, a portable black light to identify rodent urine.

(4) The inspector shall note the condition of pallets and cases, as well as look for actual infestations in the product. Damaged cases should be viewed with suspicion.

(5) Rodent Inspection

(a) The MRE ration is highly vulnerable to rodent attack, especially in the LFORM configuration. Mice, for example, may be brought aboard in plywood boxes containing other materials in LFORM (burlap bags, ordnance, barbed wire).

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(b) Inattention to detail on the part of the inspector looking for rodents could have serious consequences. The inspector should look for droppings, urine stains, rub marks, gnawing, and shredded nesting materials on, in, and under pelletized goods. Rats and mice may also infest the interior of pelletized goods.

(c) The inspector should not confine the search for rodents to the MRE rations. The pests will nest in nonfood pallets as well.

(6) Insect Inspection

(a) The inspector should note number and type of dead insects on the deck, as well as any live insects on or around pallets and packages.

(b) Check the MREs by removing cases from the top of the pallet and looking closely for insects on package surfaces or in cracks or folds between packages. Breaking open pallets of all MREs stowed aboard ship is not recommended. Insects may be found on the underside of plastic bags, in the bottom of cases, between the box and the sides of the MRE case. The existence of "frass" or silk in or on the product or chewed entry or exit holes are clues to an infestation, even if actual insects are not immediately seen.

(c) Positive insect identification may be obtained from the nearest area medical entomologist or PMC listed in reference (f).

E. Procedures When LFORM MREs are Infested by Insects

(1) Notify the combat cargo officer and medical officer.

(2) Determine the extent of infestation and record lot numbers of MRE containers.

(3) Remove all infested/damaged cases from the LFORM stowage space immediately, in order to minimize the possibility of infestation of "clean" supplies. Refrigerate if possible, or dispose of following current directives. When cases are damaged during loading, the cases shall be replaced with undamaged cases from stock.

(4) Contact the nearest Navy medical entomologist or PMC by phone or message for guidance and to transmit information on the lot numbers, condition and quantity of infested MRE rations. See reference (f) for location of the nearest area entomologist.

(5) No fumigation procedure for MREs is currently approved. Food items other than MREs found to be infested with insects should be immediately fumigated with an approved fumigant. If this cannot be done within 24 hours, the infested commodity shall be covered with plastic and the plastic sealed to

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the floor with tape. This will serve as a temporary means of minimizing cross contamination to other products. If all of the above are impossible, place the infested commodity in refrigerated storage. If MRE rations are infested with insects, fumigation is permitted to halt the spread of insects to clean products. Local medical or veterinary representatives must then determine through ration breakdown which components can be salvaged.

F. Procedures When MREs Are Infested by Rodents

(1) Gangways shall be well lit at night. Set traps and dispose of rodent carcasses following guidance provided in reference (f). Check all traps during weekly inspections. When in port, ratguards must be utilized on all ship-to-shore lines on any vessel carrying MREs.

(2) Rodent bait blocks made of paraffin are not recommended for use aboard ship for two reasons: (a) the grain bait in the paraffin block may be infested with insects during the manufacturing process and serve as a foci for infesting the stored products, and (b) any rodent poisoned by a bait block may die in an inaccessible area and cause unpleasant odors.

(3) Glue boards may be useful for rodent control, especially in inaccessible areas. As with traps, locate the glue boards in natural rodent runs.

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Quick Reference Guide for  
Pesticide Formulations and Acceptable Units of Measure

The following combinations are accepted in the edit process. Other units will result in record rejection and return to the originator.

Formulation Name	Code	Application Unit of Measure
Aerosols . . . . .	AER . . . . .	GA or FL
Emulsions . . . . .	EML . . . . .	GA or FL
Solutions . . . . .	SLN . . . . .	GA or FL
Suspensions . . . . .	SUS . . . . .	GA or FL
Dusts/Granules . . . . .	DUS . . . . .	LB or DR
Baits . . . . .	BTS . . . . .	LB, DR, or EA
Solid Fumigants . . . . .	SFU . . . . .	LB or DR
Liquid Fumigants . . . . .	LFU . . . . .	LB or DR
Other Formulations . . . . .	OFU . . . . .	GA, FL, LB, DR, or EA

Pesticide Units of Measure: LB = Pound, GA = Gallons, DR = Dry Ounce,  
EA = Each, FL = Fluid Ounce

## TIME CONVERSION

Minutes	Hours
6 . . . . .	0.1
12 . . . . .	0.2
18 . . . . .	0.3
24 . . . . .	0.4
36 . . . . .	0.6
42 . . . . .	0.7
48 . . . . .	0.8
54 . . . . .	0.9
60 . . . . .	1.0

## TIME CONVERSION

Minutes	Hours
6 . . . . .	0.1
12 . . . . .	0.2
18 . . . . .	0.3
24 . . . . .	0.4
36 . . . . .	0.6
42 . . . . .	0.7
48 . . . . .	0.8
54 . . . . .	0.9
60 . . . . .	1.0